

In-Depth Report

Reverse Engineering Analysis

[Amazon Kindle Fire-D01400]

Dec. 2011



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Displaybank Co., Ltd.
8F 801, Korea Design Center, 344-1 Yatap-dong,
Bundang-gu, Seongnam-si, Gyeonggi-do, Korea 463-954
Phone: (82) 31-704-7188, Fax: (82) 31-704-7187
URL: www.Displaybank.com



Conditions & Description

◆ Description of Cost Table (SET)

	Category	Major Components
Display	Array	Array Processing Cost, Material Cost, Yield, etc
	Cell	Cell Processing Cost, Material Cost, Yield, etc
	Module	Module Processing Cost, Material Cost, Yield, etc
	Touch Screen Panel	Touch Screen, Touch Board
	Others	Etc
Mechanica l	Back	Back Cover, Cushion, Screw, Films, etc
	Middle	Button, Connector Cover
	Packing	Package Box, etc
Circuit	CPU	Application Processor
	Memory	DDR, NAND Flash
	Bluetooth/WLAN	Wireless
	User Interface	MEMS Sensors
	PM / Battery	Power Source, PMIC
	Electro-Mechanical	Speaker, Antenna
	Others	Others
Etc	Cables	External Cables
	Manual	User Guide
	Others	Accessory

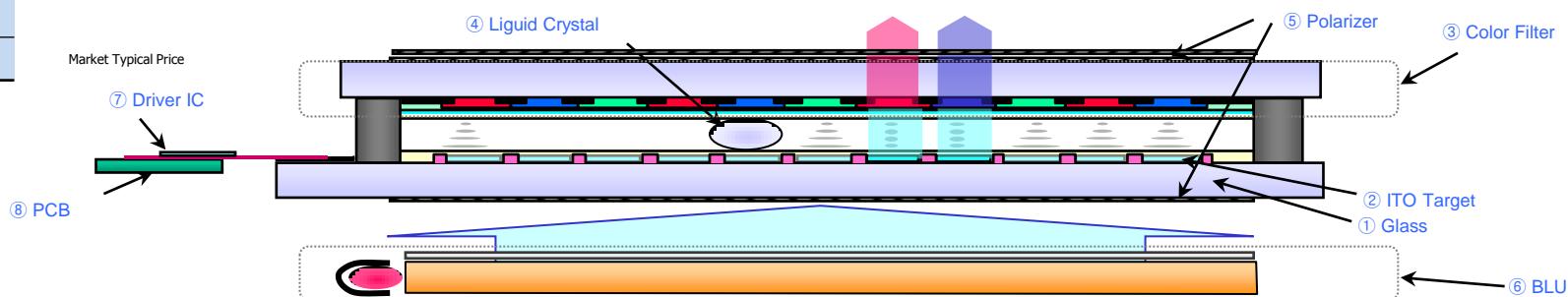
SAMPLE

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Conditions & Description

◆ Description of Cost Table (Display)

Processing	Array	Glass	① Cost of Single Back Glass Substrate by Size
		Target	② Pixel Electrode-use Target of Array Process (Target: Al, Mo, Mo (Ti), Cu, etc. S/D, Gate electrode-use Target)
		Chemical, Others	Electrode-use target needed in array process excluding various MRO wet chemical, gas, photo mask, photo-sensitive organic chemical material, and ITO (Wet Chemical: Etchant, Stripper, Developer, Thinner, Cleaner) (Gas: NF3, SF6, SiH4, etc.) (Photo-sensitive organic chemical material: Photoresist, PAC)
		Array Yield(%)	Array Process Yield
	Cell	Color Filter	③ Cost of Single Color Filter (includes front glass substrate), In-house based
		Liquid Crystal	④ Cost of Liquid Crystal Input in Single Panel
		Polarizer	⑤ Cost of Two Sheets of Front and Back Polarizer Substrates which Pass Through Specific Lights
		Others	Cost of other materials including a material for fixed liquid crystal molecule orientation, sealant to adhere front and back substrate, and Ag which totalizes front and back substrates
		Cell Yield(%)	Cell Process Yield
	Module	BLU	⑥ Cost of backlight unit which includes protection sheet, prism sheet, diffusion sheet, light plate guide, reflective sheet, lamp, and lamp cover
		Driver IC	⑦ Cost of IC which operates pixels to Display letters or images on LCD screen
		PCB,Others	⑧ Cost of Gate PCB, Data PCB (printing circuit substrate), ACF, and Chassis used in modules
		Module Yield(%)	Module Process Yield
	Operation		Labor Costs Depreciation Cost O/H,R&D
Total Manufacturing Cost		SG&A(5%)	
Total Cost		Market Typical Price	
Module Price		Sale management cost, estimated to be 5% of the selling price	
Profit		This sample is designed to help understand the composition of the report and the type of description.	



Conditions & Description

◆ Description of Cost Table (Touch)

Material Cost	Front Cover Glass	Front Cover Glass is tempered glass
	Glass	Glass/Film substrate for ITO layer supporting
	Insulator	Insulator
	ITO	ITO for touch Sensor
	Touch Controller	Touch Controller located in Touch Module or Main board
	Others	Others
	Sub-Total	
Processing Cost		
Total Manufacturing Cost		
SG&A(3%)		
Total Cost		
BLU Price		
Profit		
Profit Ratio(%)		

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Conditions & Description

◆ Description of Profit Estimation Table (Tablet SET)

Category	Description
Manufacturing	Display Parts LCD Module prices
	Circuit Parts Sub total of Circuit
	Mechanical Parts Mechanical cost depends on design simplicity. 1 piece cover can save cost more than 2 or 3 piece cover.
	Accessory Parts
	Net Material Cost Net Material Cost means total sum of net material cost
	Etc.(CKD Pack+Tax+Freight+Loss+H/C)
	Total Material Cost
	Manufacturing O/H Labor/Overhead, Warranty, etc
	Total Manufacturing Cost Total Manufacturing Cost means total cost sum right after manufacturing completed.
	Manufacturer Margin Manufacturer Margin come from Distribution corporation to Manufacturing corporation.
Distribution	FOB
	Freight + Insurance + Handling & Land Insurance, Handling Charge, Land Charge
	CIF/CNF FOB, Insurance, H/C+L/C
	This sample is designed to help understand the composition of the report and the type of description.
Marketing	Distribution O/H
	Duty/Procedure
	Distribution Margin Distribution margin come from Marketing corporation to Distribution corporation
	EX-HUB
Marketing	Marketing O/H
	Marketing Margin
	Net Dealer Price
	Sales Deduction Sales Deduction includes discount for pre purchasing on product
	Average Dealer Price Average Dealer Price means product price for dealer

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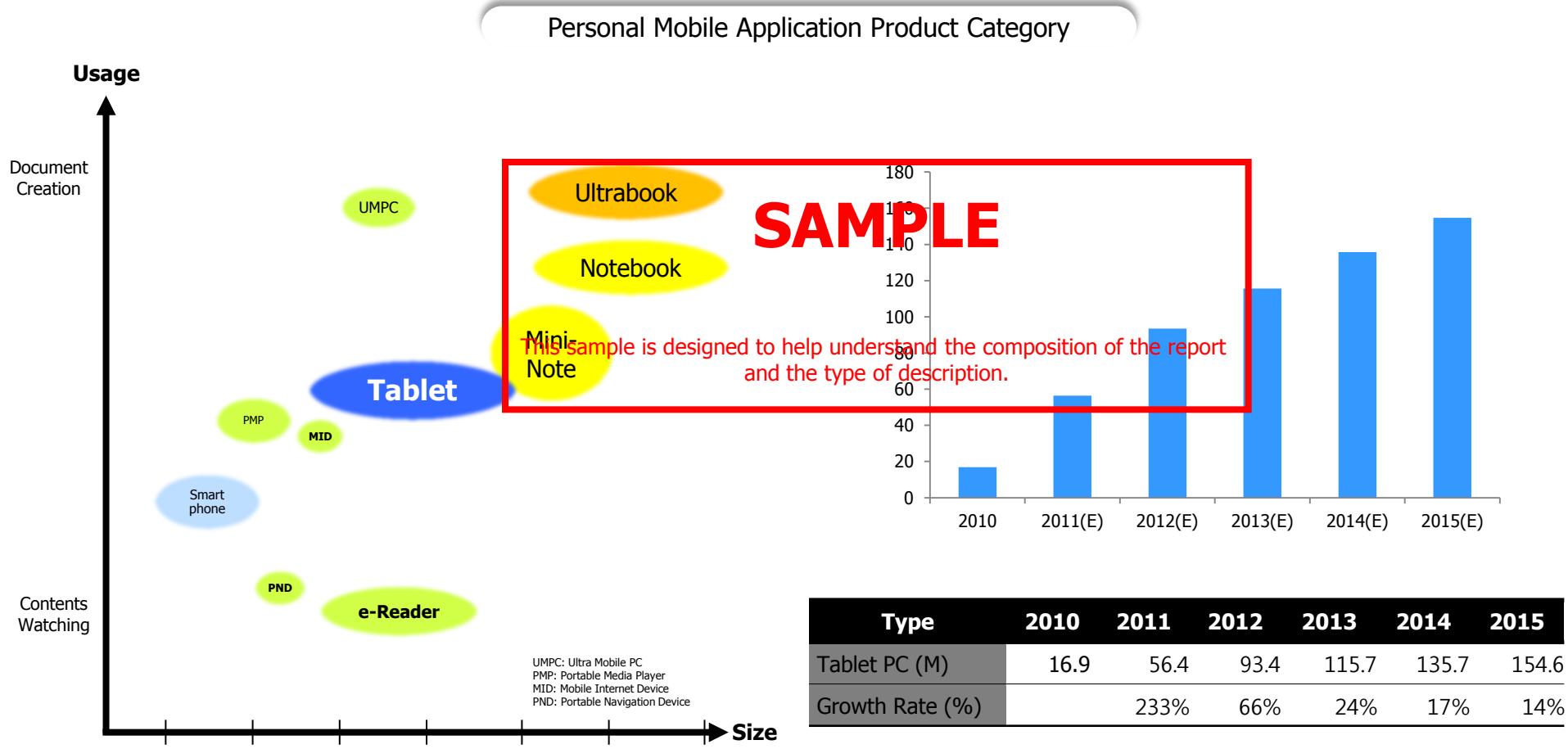
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Product Background

Product Category

- Table PC becomes a new application due to the advent of Apple's iPad
- Tablet PC market is expected to increase from 56.4M units in 2011 to 154.6M units in 2015



* Source : Displaybank forecast in 4Q2011

Product Background

Kindle Series Spec Comparison

- Amazon Kindle introduced 5 types of products until today, the functions of those products are limited to use only the services that Amazon provides
- Kindle Fire evolves from the product line-up focusing on e-book terminals that employing E-Ink to a table PC that is favorable to the consumption of contents of the company's own
- Employs a TFT-LCD display that can utilize video, App, and etc. from the contents focused on text and music

Classification	Item	Kindle Fire	Kindle Touch Wi-Fi / 3G	Kindle Dx	Kindle	
General	Image					
	Network Type	Wi-Fi	Wi-Fi / 3G	3G	Wi-Fi	
	OS	Android™ 2.3 platform (Customized)	Linux	Linux (2.6 kernel)	Linux	
	Display	7", 1024 x 600 LCD, 16.7	6", 600 x 800 Resolution E-Ink Display	3.7", 1200 x 321 Resolution E-paper	6", 600 x 800 Resolution E Ink Display	
	Touch Screen	Glass, Capacitive (Multi Touch)	IR Type (Multi Touch)	n/a (Keyboard)	n/a (Buttons)	
	Size	7.5" (190mm) L x 4.7" (120mm) W x 0.45" (11.4mm) D	6.8" (172mm) L x 4.7" (120mm) W x 0.4" (10.1mm) D	10.4" (264mm) L x 7.2" (182mm) W x 0.38" (9.6mm) D	6.5" (165mm) L x 4.5" (114mm) W x 0.34" (8.6mm) D	
	Weight	~14.6oz (~413g)	~7.5oz (~213g) / ~7.8oz (~220g)	~18.9oz (~536g)	~5.98oz (~170g)	
Memory	External/Internal	8GB	4GB	4GB	2GB	
Connection	Headphone Port	3.5mm Ear jack	3.5mm Ear jack	3.5mm Ear jack	3.5mm Ear jack	
	Connection Port	Micro USB (USB 2.0 High-Speed)	Micro USB (USB 2.0 High-Speed)	Micro USB (USB 2.0 High-Speed)	Micro USB (USB 2.0 High-Speed)	
Battery	Battery Life	8 Hours	2 Months	3 Weeks	1 Month	
Other Features	Supported File	Kindle (AZW), TXT, PDF, unprotected MOBI, PRC natively, Audible (Audible Enhanced (AA, AAX)), DOC, DOCX, JPEG, GIF, PNG, BMP, non-DRM AAC, MP3, MIDI, OGG, WAV, MP4, VP8.	Kindle (AZW), TXT, PDF, unprotected MOBI, PRC natively; HTML, DOC, DOCX, JPEG, GIF, PNG, BMP through conversion.			
	Moving Picture	Yes	No	No	No	
Released date/Price	Date/USD\$	2010.11.15/\$199	2011.11.15 (\$99) / (\$149)	2010.07.07 \$489	2009.11. (\$79)	

Product Background

Product Concept

- Amazon's Kindle Fire is a table PC optimized to the consumption of contents of the company's own
- The performance for its price is excellent, LCD display is adopted instead of E-ink display adopted to a conventional e-book reader (LCD display is adopted to use diverse applications such as magazine/video/game, and etc. in black-and-white screen focusing on conventional E-book)
- This product is sold at lower prices than the production cost and induces to utilize the company's diverse paid contents



Kindle Fire

Main Concept

- Conventional E-ink Display is converted to LCD-based color display
- A portable device for the consumption of contents of world's largest shopping mall and online bookstore, Amazon (extensive contents such as books, magazines, and newspapers are equipped)
- The lowest price of the tablet products currently being sold (\$199)
- Amazon Cloud Storage is supported free of charge

Major Technology

- LCD Display : HYDIS Panel (AFFS+ method) is employed
- Touch Screen Panel : TPK's capacitive type is applied
- Main Processor : Texas Instruments OMAP4430 is applied
- Battery : High-capacity Battery (4,400mAh) is applied

Executive Summary

Technology Review

- Applies HYDIS's LCD panel (uses either LG Display panel or BOE LCD Panel)
- Touch Screen Panel applies a TPK's capacitive type
- A tablet PC product that applied LCD display based on TI's AP and e-book platform

Display

- Applies HYDIS's Edge LED panel
- LED Bar applies a Horizontal 1Bar, and the power is supplied from LCD Drive Board
- TSP is supplied from TPK
- Touch Controller IC applies ILITEK's products

SAMPLE
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and the type of description.
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Circuit

- CPU applies TI's e-book platform 'POP-type "OMAP4330"
- Most ICs like LVDS Transmitter, PMIC, AUDIO AMP applies TI's products
- WIFI and BT Module apply JORJIN's products

- Applies a plastic (Mold) flame in order to cut a price down and to reduce weight
- Uses EMI gasket and tape for the approval of safety standards and attaches a SUS panel for the heat radiation to back cover

- Supplies only Power Adapter
- Employs Android 2.3 OS's customizing Version

Mechanical

Etc

Executive Summary

Cost & Supply Chain

- Touch control board is attached to a touch screen panel, however, is added to display & touch part in terms of cost
- Battery is added to a circuit part

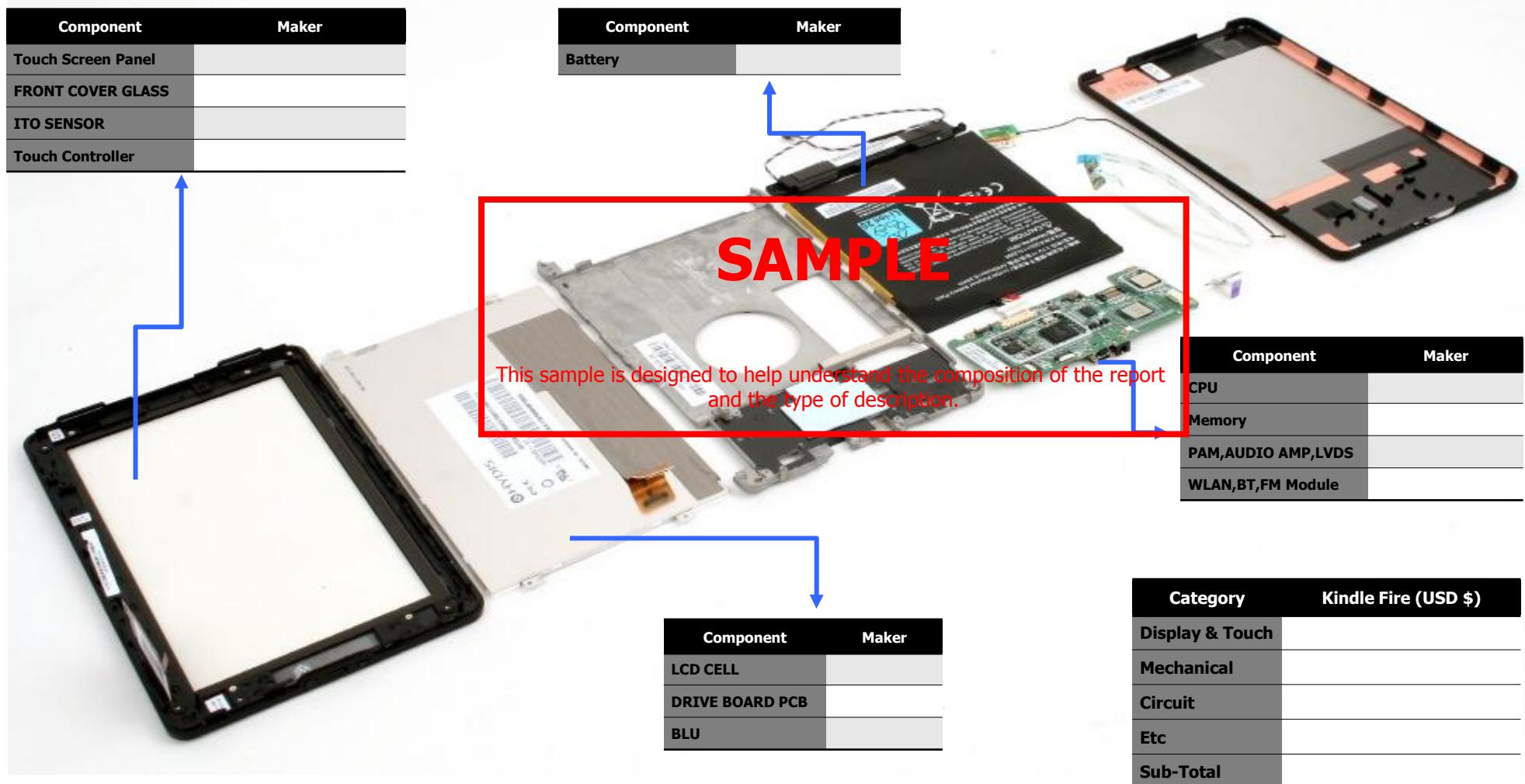


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Package Box

Box Opening Process

- Uses a standing-type box. If tearing off the dotted line on the top of the box , a tablet appears
- Quick service manual is in the top of the box, an adapter for charging is enclosed on the bottom of tablet

1



Box unpacking

2



SAMPLE

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and the type of description.

3



Adaptor

4



Quick Install Guide

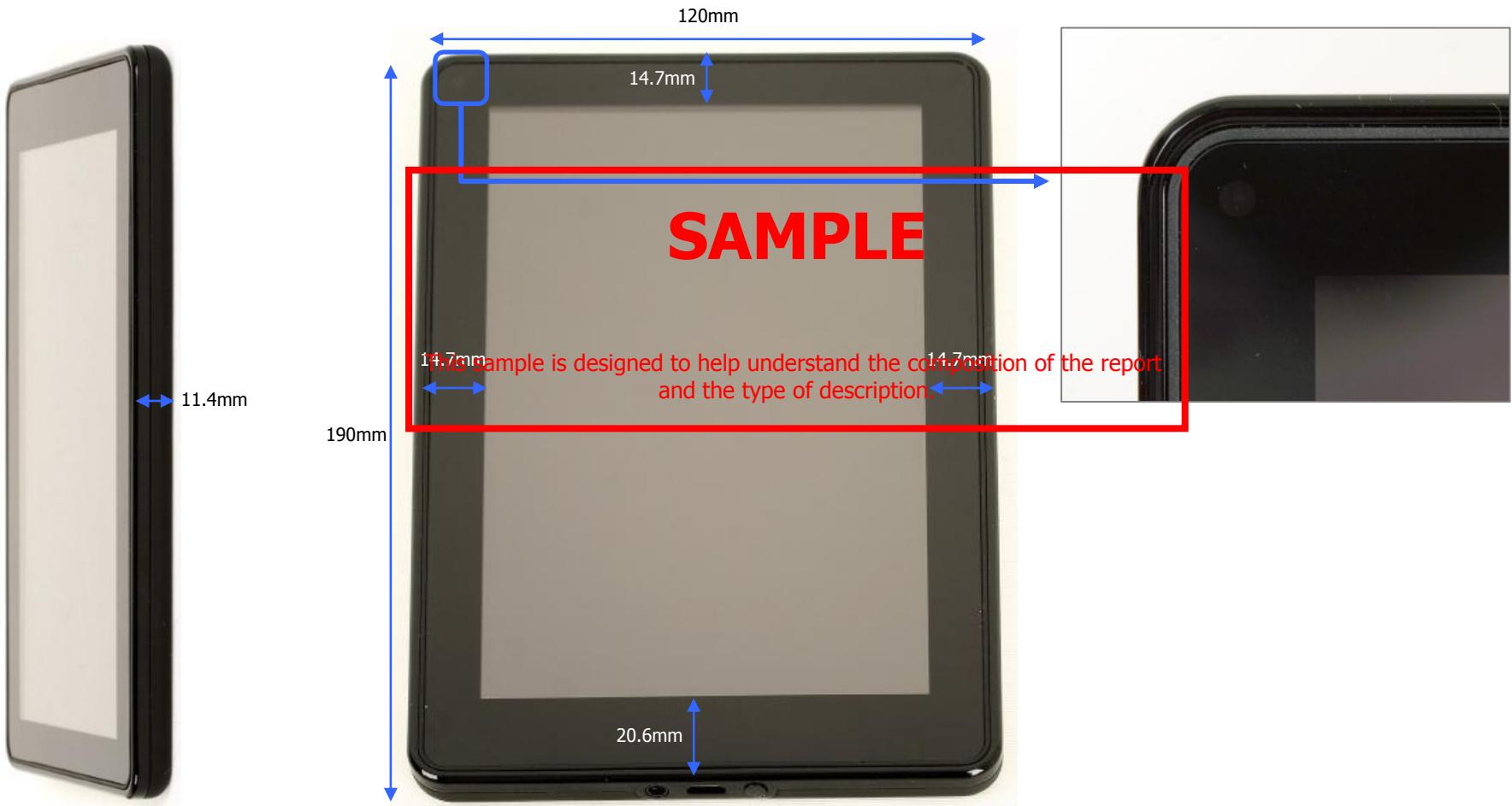


Kindle Fire

Covers

Front Cover

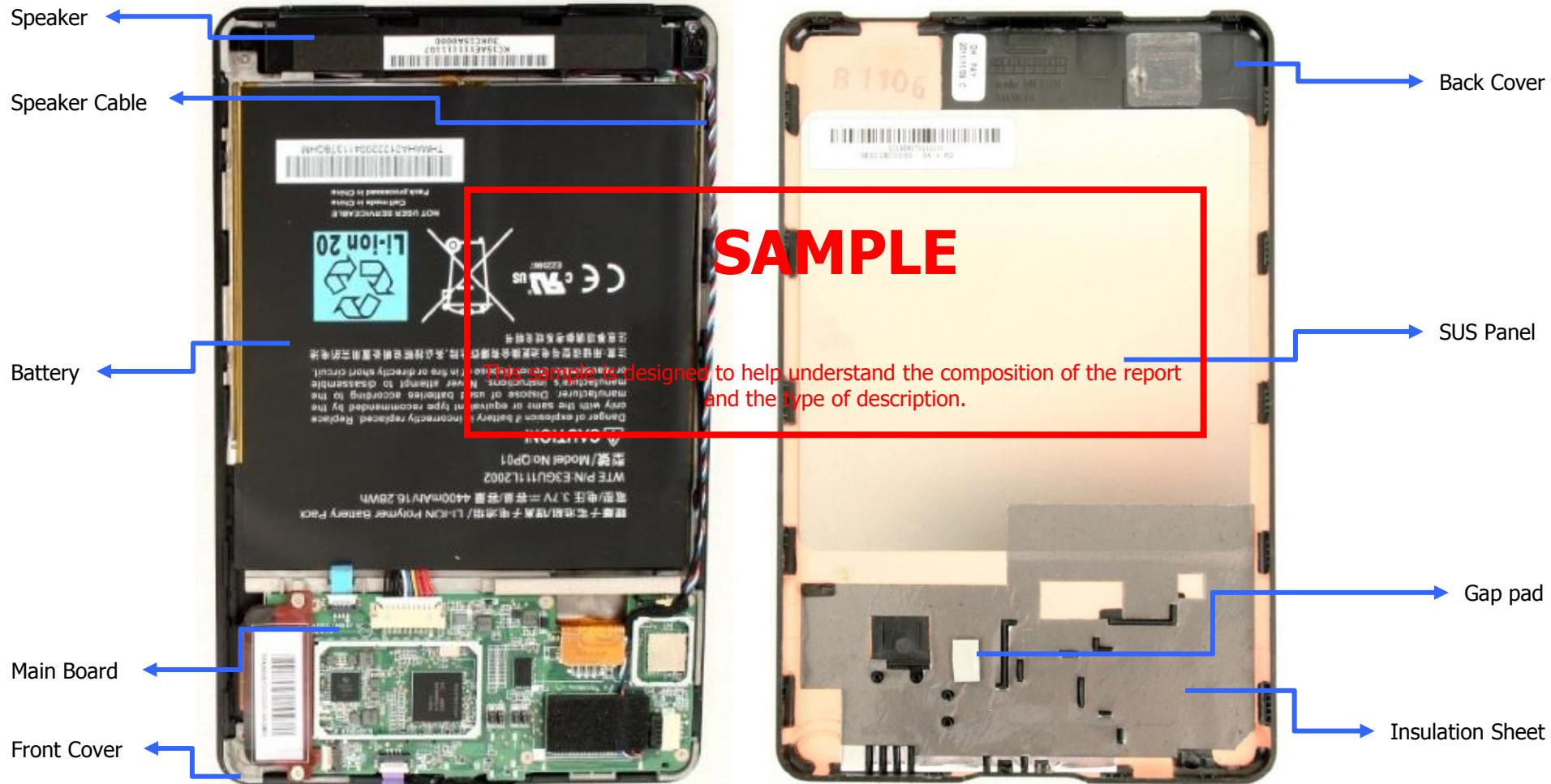
- It is a 7" product, 190mm x 120mm x 11.4mm
- Bezel thickness of top and left/ right sides are all equally 14.7mm, and that of the bottom is 20.6mm
- On the front, there is a lighting sensor on the top of left side



Covers

Back Cover Disassembly

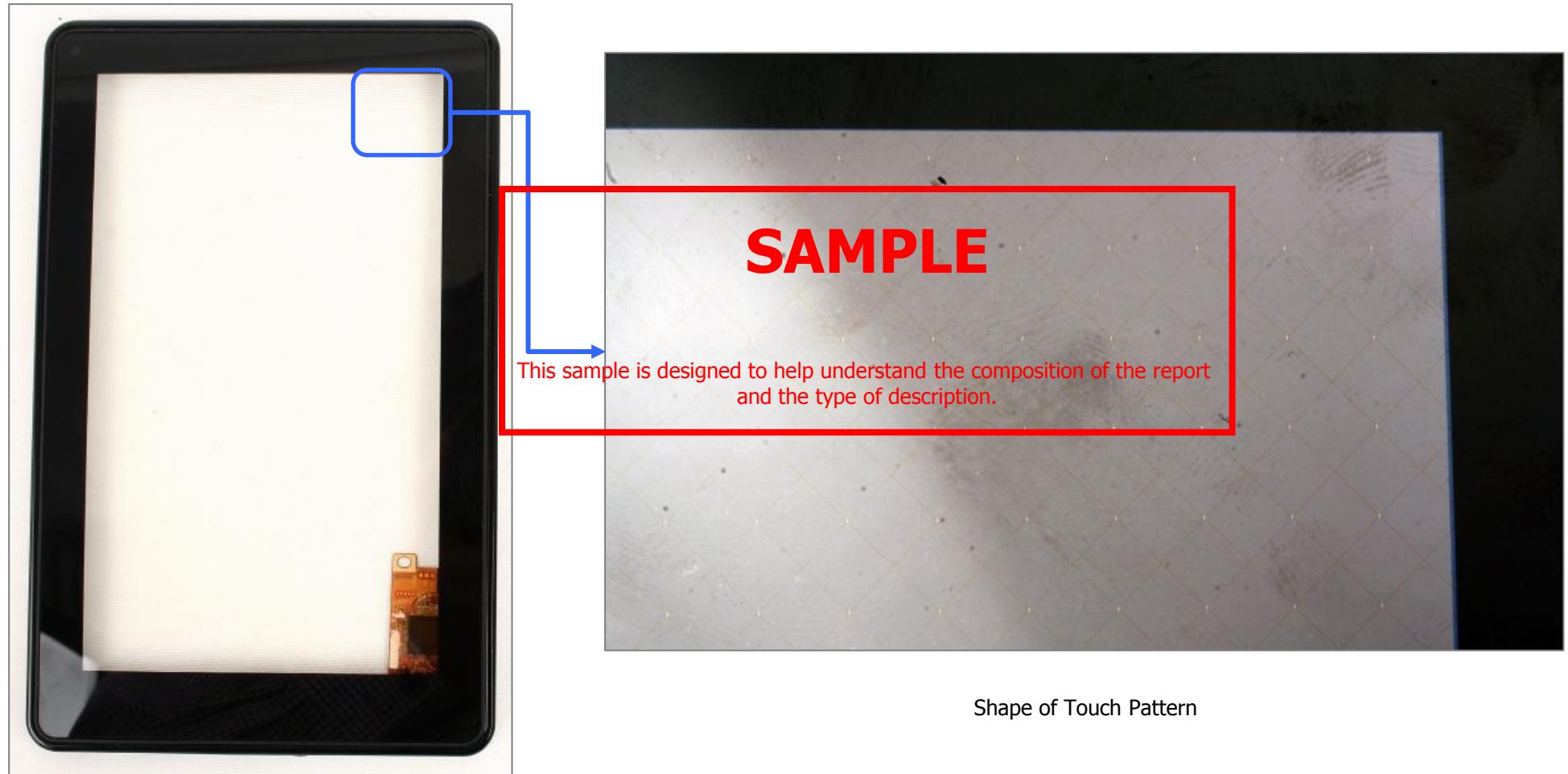
- Separates into front cover module and back cover to lift the gap below the USB port in the bottom
- A SUS panel is attached for the heat radiation of battery on the back cover, high-capacity battery accounts for the majority



Touch Screen Panel

Touch Screen Pattern Structure

- TPK's projected capacitive type GG type (Single side ITO) is applied to a touch screen panel
- The shape of pattern is a grid structure, is uniformly distributed in the whole area



Display Module

Specification

- LCD applied to Kindle Fire is HYDIS' HV070WS1-101 panel. The specification of the panel is as below



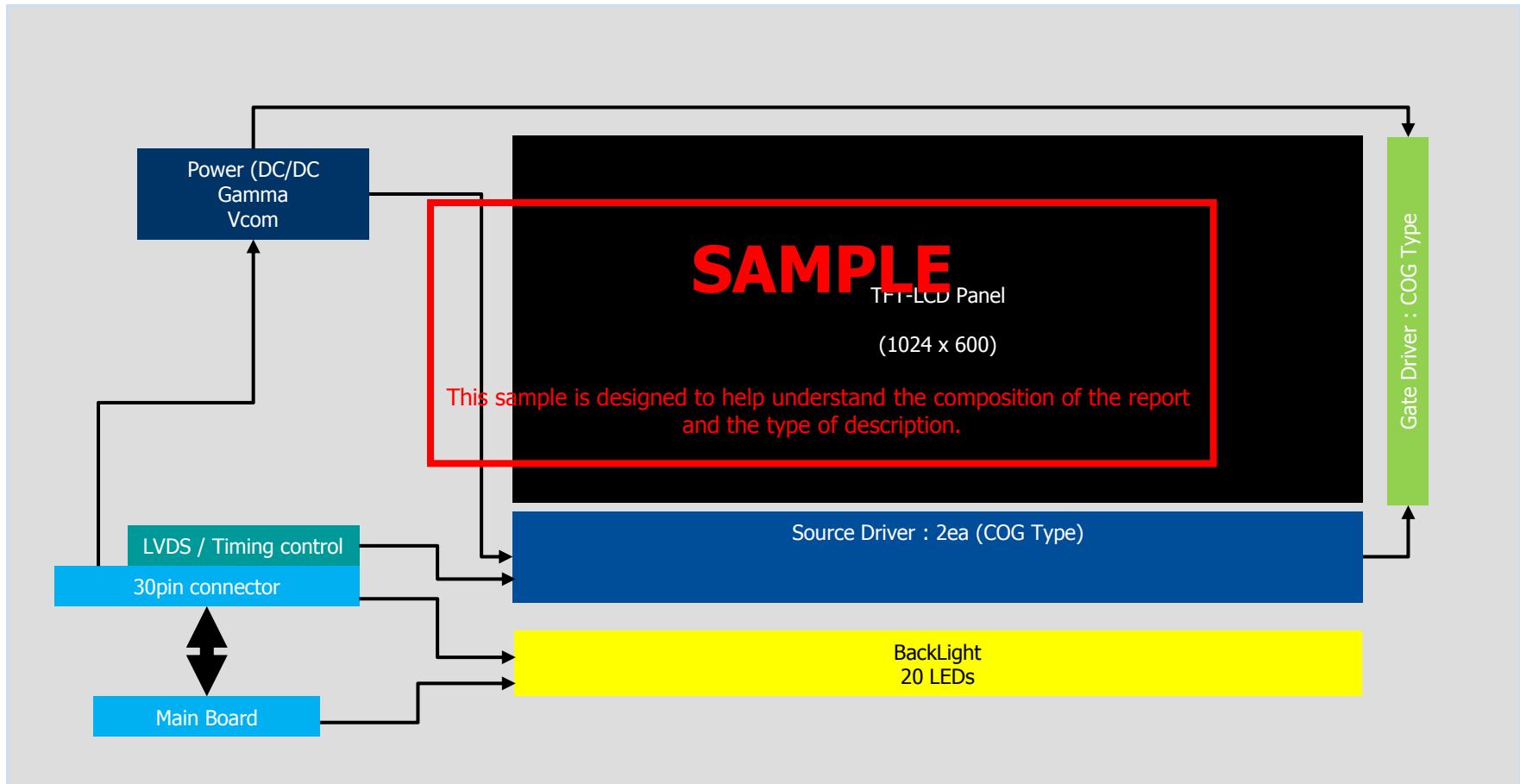
This sample is designed to help understand the composition of the report
and its parts. It is not a typical product.

	Spec
Maker	HYDIS
Model	HV070WS1-101
Panel Type	LCD (Color TFT/ AFFS)
Display Inch	7.01"
Resolution	1024 x 600 (WSVGA)
RGB arrangement	RGB Vertical Stripe
Aspect Ratio	16 : 9
Colors	16.7 million (8-bit)
Contrast Ratio	300:1 (Typ)
Brightness	400cd/m ² (Typ)
LC mode	AFFS
BLU	Bottom edge side, LED type 20 LED Package (5 x 4 Array)
Depth (mm)	2.47mm
Interface	LVDS (1 Channel)

Display Module

LCD Module Block Diagram

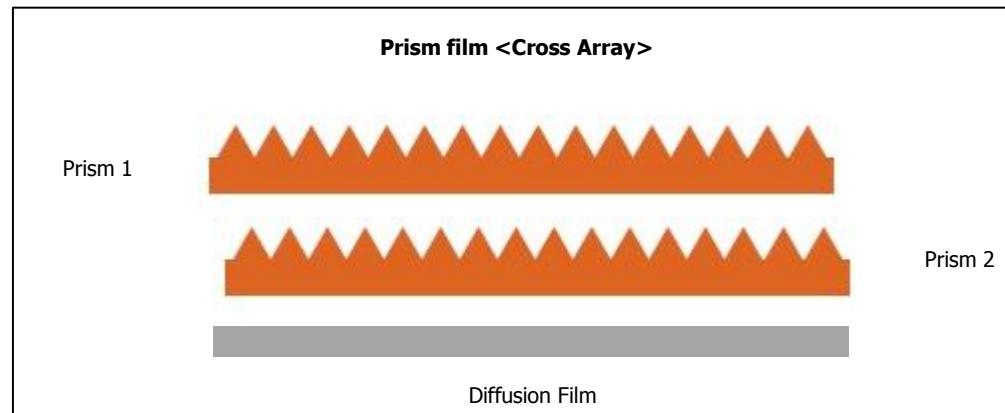
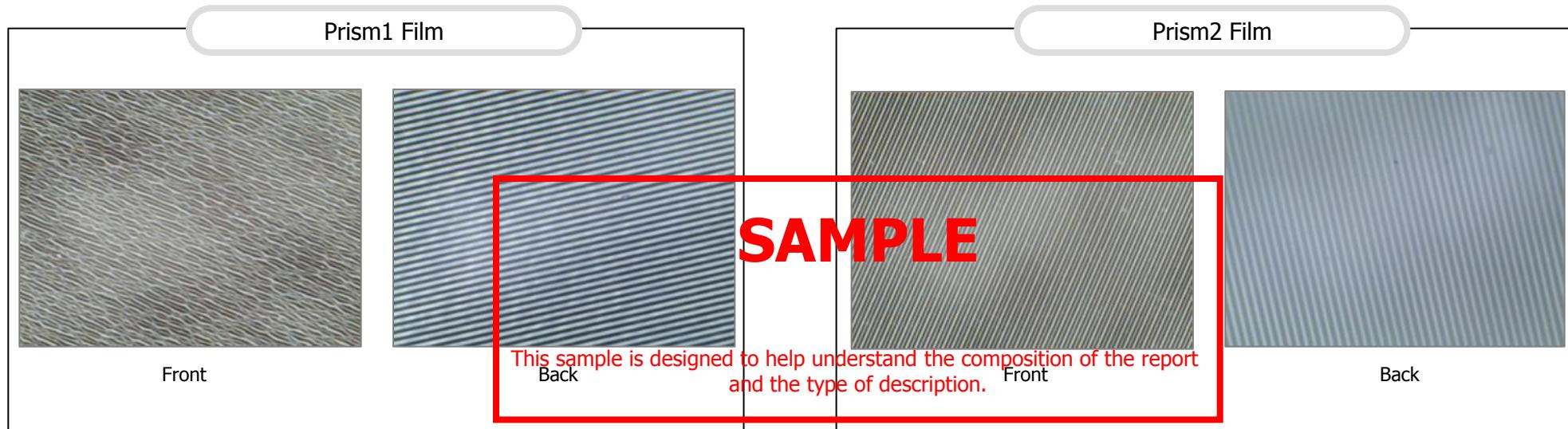
LCD Module Block diagram



Display Module

Prism Film of BLU

- Applies 2 sheets of prism films, protects the pattern of #2 prism film and prevents Moire by the Matt processing on the front of #1 Prism Film
- A grid pattern that each prism direction intersects by ± 45 degrees



Display Module

Spec. Comparison

- In terms of the LCD panels applied to Kindle Fire, provides the specifications equivalent to the ones applied to other table PCs, and uses either HYDIS or LGD panel

	Amazon Kindle Fire (HV070WS1-101)	NOOK TABLET (LD070W2(SL)(02)
Maker	HYDIS	LG Display
Size	7" diagonal with Multi-touch	7" diagonal with Multi-touch
Aspect Ratio	16:9	16:9
Panel Type	AFFS/LCD (Color TFT/AFFS/a-Si TFT)	AH-IPS/LCD (Color TFT/IPS/a-Si TFT)
Color	16.7M	16.7M
BLU	Edge type LED (Downside 1bar)/20 LED Package	Edge type LED (Downside 1bar)/20 LED Package
Resolution	1024 x 600 (WSVGA)	1024 x 600
Contrast	800 : 1	800 : 1
Brightness	400cd/m ² (Typ)	400cd/m ² (Typ)
Pixel Pitch (mm)	0.15mm X 0.15mm	0.15mm X 0.15mm
Outline dimension	163.60(H) X 102.90(V) X 2.47(D) Active : 153.6 x 90.0	162.8(H) X 102.9(V) X 2.47(D) Active : 153.6 x 90.0
Power	Max 2.32W, (Logic:0.96W / BLU : 1.36W)	Max 2.31W (Logic : 0.95W / BLU : 1.36W)
Weight	LCD : 95g	LCD : 95g

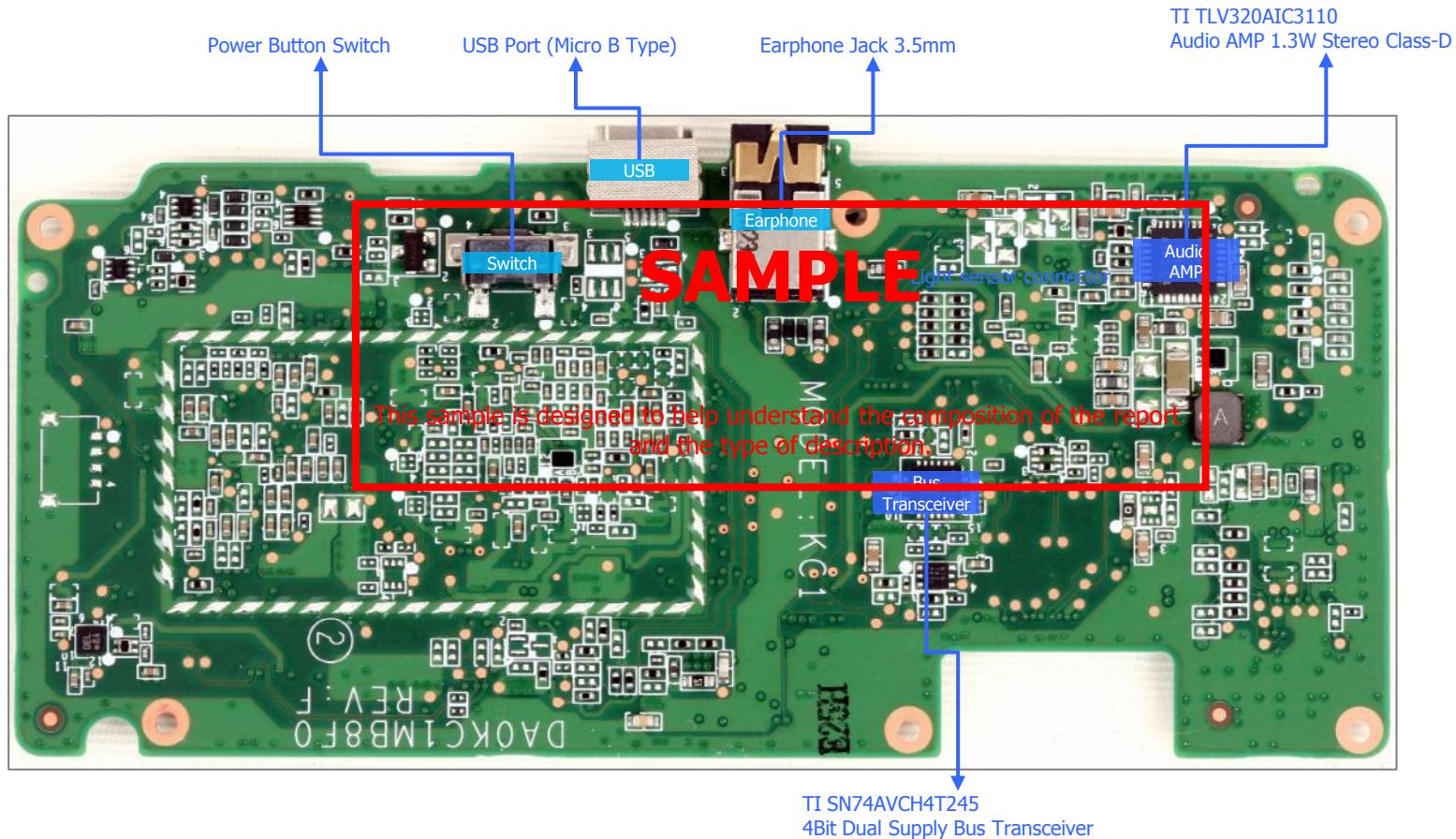
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Main Board

Bottom of PCB

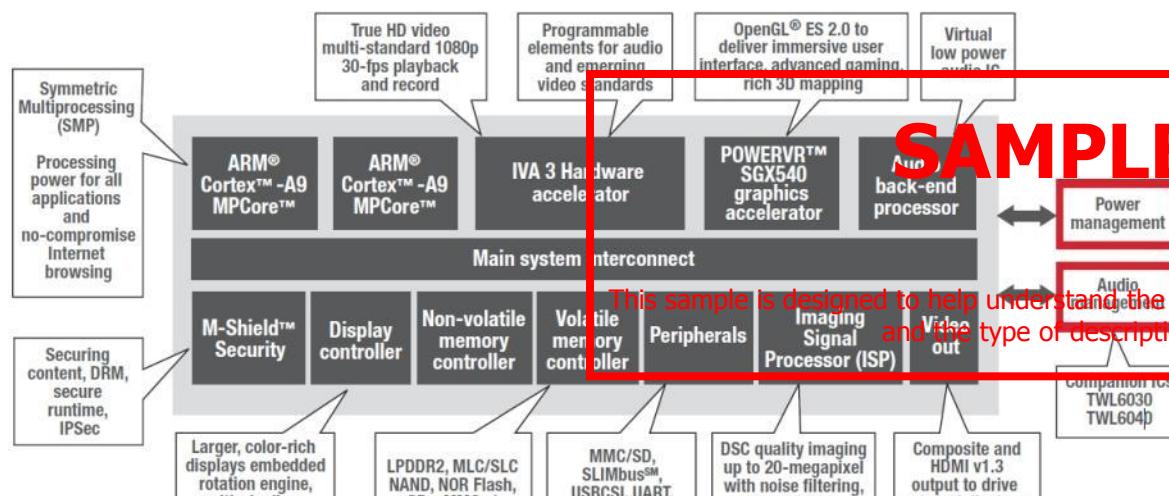
- Input/output ports, audio amp, and bus transceiver are located on the back of mainboard
- TI AIC3110 internally equipped with audio codec is applied to audio amp, TI's bus transceiver is applied
- A tact switch for power button is installed, Micro B type USB and earphone 3.5mm port are installed



Main Board

Major IC (CPU)

- OMAP4430 is internally equipped with GPU/Image Processor/Display Controller
- TI's OMAP platform is optimizedly designed to have a good compatibility with its own ICs (IC(PAM/Audio AMP/WLAN)
- Display maximum support resolution can support up to WUXGA (1920x1200)

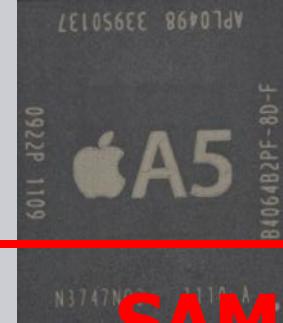
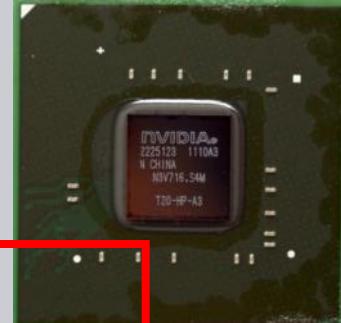


Feature

- Dual-core ARM Cortex-A9 MP Core SMP general-purpose processors for higher performance and efficiency
- IVA 3 Hardware accelerator
 - Delivers true 1080p multi-standard HD record and playback with the industry's broadest support for multimedia codecs available today as well as programmability to add support for future codecs
 - Provides support for high definition stereoscopic 3D encode/decode (OMAP4430: 720p, OMAP4460: 1080p)
- Image Signal Processor (ISP) for high-quality image and video capture, delivering digital SLR-like performance with 20 megapixel still image capture
- Imagination Technologies POWERVR™ SGX540 3D graphics core for stunning 3D user interfaces and high intensity 3D mobile gaming
- Audio back end (ABE) processor provides a virtual low power audio chip for significant power savings
- Flexible system support
 - Composite TV output
 - HDMI v1.3 output to drive HD Displays
 - WUXGA Display support
 - Peripheral interfaces: MIPI serial camera and serial Display interfaces, MIPI® SLIMbusSM, MMC/SD, USB 2.0 On-The-Go High Speed, UART, SPI, and more
- Support for leading mobile OSes: Microsoft Windows Mobile, Symbian and Linux (Android, Limo)
- 45-nm mobile process technology for improved performance and power efficiency
- Optimized power and audio management companion chips: TWL6030 and TWL6040

Main Board

CPU Comparison

	Amazon Kindle Fire	Apple iPAD2	Samsung Galaxy Tab 10.1
Picture	 TEXAS INSTRUMENTS OMAP TM X4430FCBS	 APPLE A5 APL0498 339S0137	 NVIDIA 2225123 1110A3 N3V716.S4M T20-HP-A3
Model	OMAP4430	A5	Tegra 2-250
Maker	Texas Instruments	APPLE	NVIDIA
CPU	Dual Core ARM Cortex A9	Dual Core ARM Cortex A9	Dual Core ARM Cortex A9
Package Type	POP	POP	SOC
Frequency	1 GHz, per core	1GHz dual-core	1 GHz
L2 Cache	1MB	1MB	1MB
L1 Cache	(32KB/32KB) per core	(32KB/32KB) per core	(32KB/32KB) per core
Memory Size	Up to 1GB	512MB	Up to 1GB
Feature size	45um	45um	40um
GPU	PowerVR SGX540	PowerVR SGX543mp2	ULP Geforce

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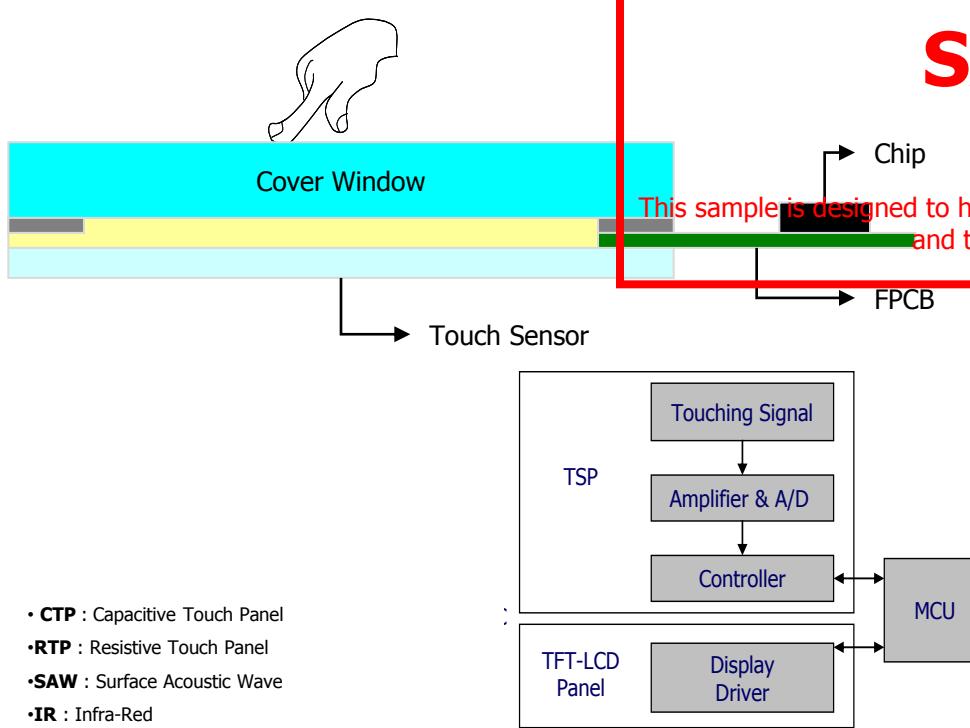
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TSP Trend

Basic TSP Structure and Classification by Driving Method

- TSP is composed of panel part and driving part (controller IC), panel part is composed of the touch sensor that ITO (Indium Tin Oxide) is deposited
- Electrode analog signal transmits to controller IC when touched by human's hand or an object, driver drives the display by receiving the digital signal coming from the controller IC

Touch Panel Structure (Capacitive Type)



Classification by Driving Method

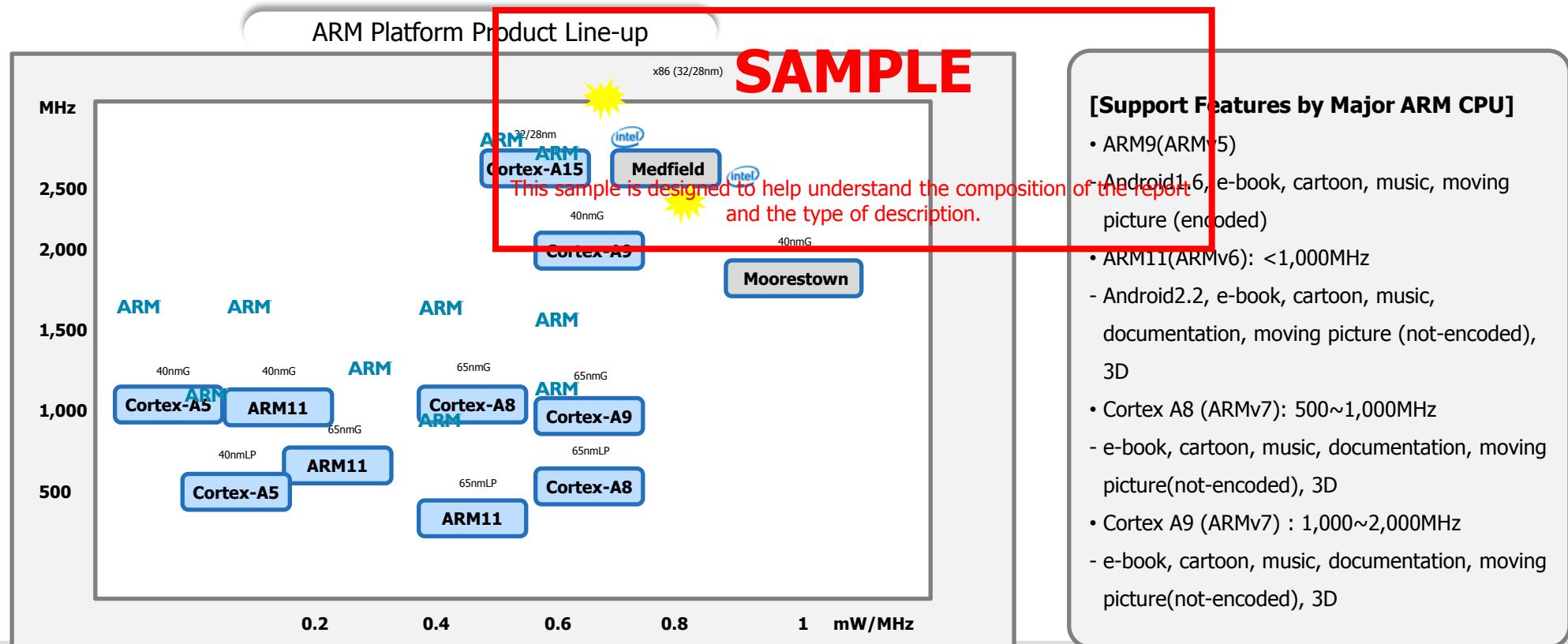
Technology	Structure
Technology 1	
Resistive	Film/Glass
4-wire	Film/Film/Plastic
5-wire	Film/Film/Glass
8-wire	Glass/Glass
Digital	Glass
Technology 2	
Analog (Surface)	Film
Digital (Projected)	Glass/Film
SAW	Film/Film/Film
IR/Optical	Glass
APR	Plastic
Others	Plastic
WIR	Glass
EMR	Plastic

APR: Acoustic Pulse Recognition
WIR: Waveguide Infrared Rays
EMR: Electronic Magnetic Resonance

CPU Trend

ARM Core

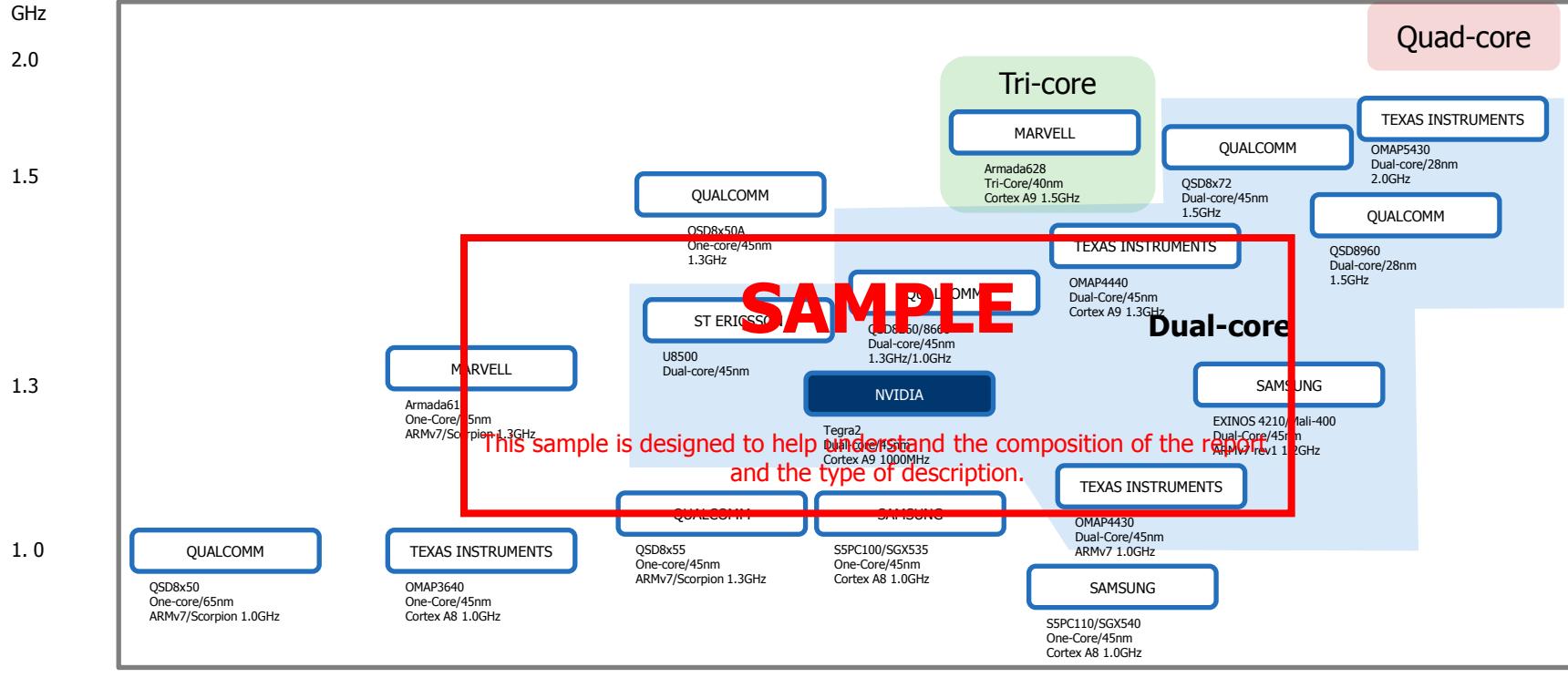
- ARM-based CPUs are applied to mobile products, ARM is the company to design the core architecture
- ARM-based CPU has strengths of fast speed and low power consumption that meet the level required to mobile devices (Accounts for about 95% market share in the mobile CPU market through the strengths such as increase in battery life, decrease in die size, alleviation of heat radiation, and etc. in the specifications that are required to mobile devices)
- Intel is developing Medifield and Moorestown to respond to ARM's Coretex, ARM is expected to enhance the targeting of Intel's market with the CPU equivalent to note PC level by releasing a 2.5GHz Core named Cortex-A15 in 2012. (Microsoft's Windows will also support ARM)



CPU Trend - CPU Overview_PRM

ARM Platform CPU Line-up

- 1.2GHz dual-core products were released from 1H'11 (OMAP 4430 included)
- 2.0Ghz TI OMAP 5 platform is expected to be released in 1H'12, even Quad Core products are predicted to be introduce in 2012



This sample is designed to help understand the composition of the report and the type of description.

Core	One	Dual	Tri	Quad
Clock	1GHz	1.3GHz	1.5GHz	2GHz
Process	65nm	45nm	40nm	28nm

Contents Service

Amazon Service

- Provides diverse services based on a massive amount of contents of the world's largest internet bookstore/shopping mall, Amazon
- Small storage space (about 6GB) of hardware can be supplemented by the offer of cloud services. This service is considered to be a good marketing tool for the sales of contents

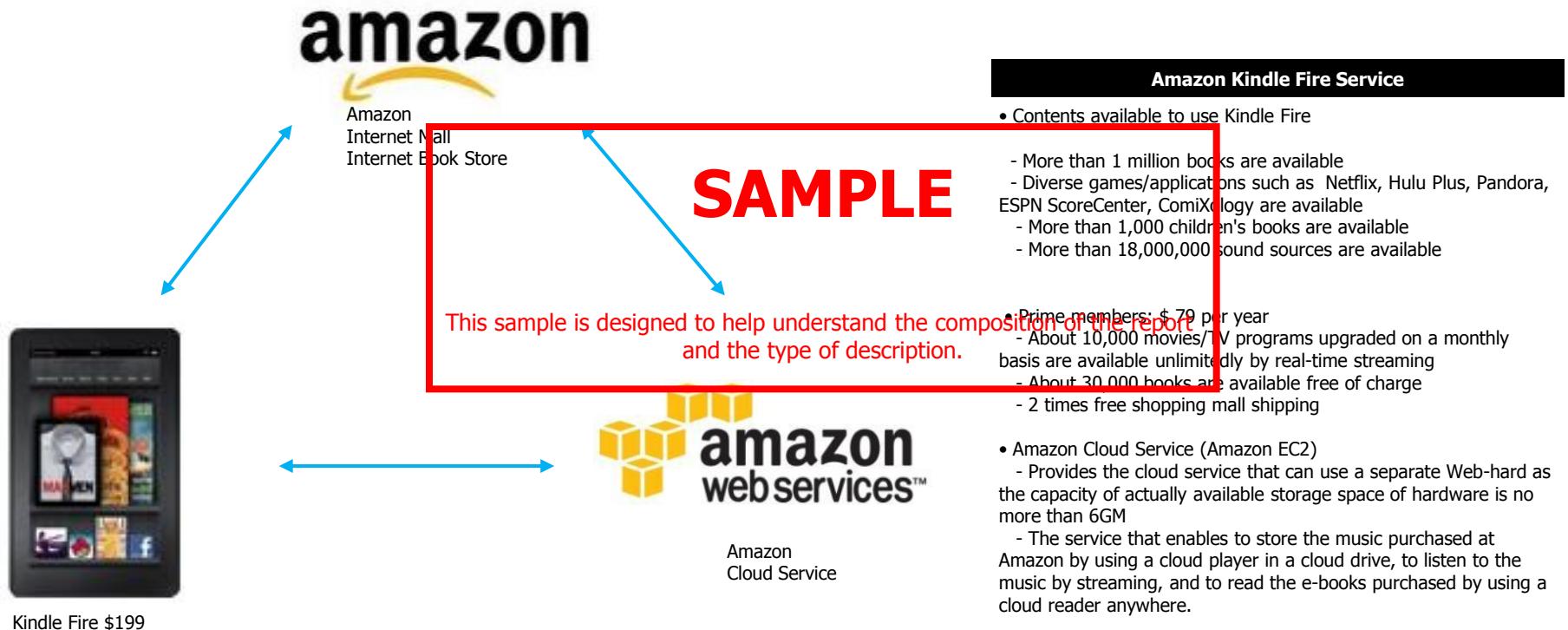


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- Overview
- Reverse Engineering
- Technical Issue
- **Cost Estimation & Major Supplier**
 - **Net Material Cost Estimation**
 - **Profit Estimation**
 - **Major Supplier**
- Appendix

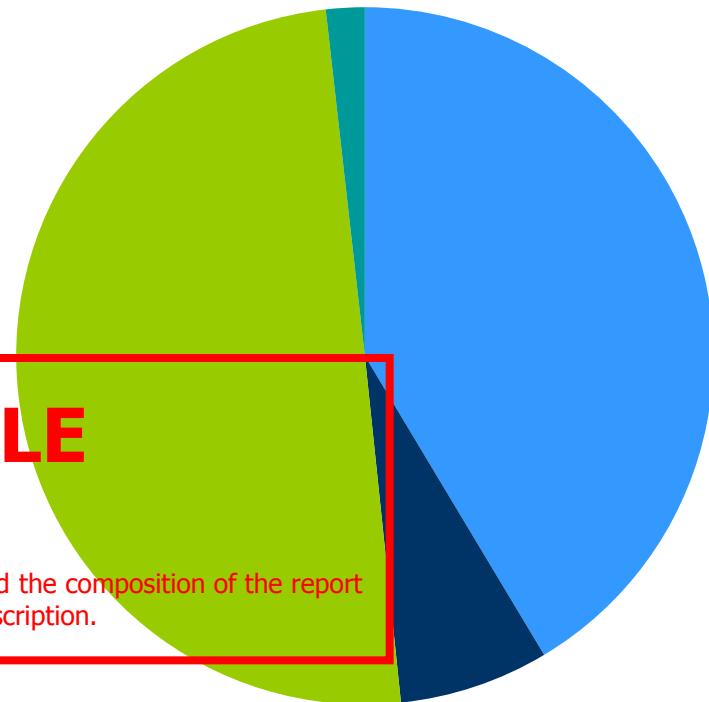
SAMPLE

This sample is designed to help understand the composition of the report and the type of description.

Net Material Cost Estimation

Total Material Cost

	Category	US\$	%
Display	Array Process		
	Cell Process		
	Module Process		
	Touch Screen Panel		
	OTHERS		
Sub-Total			
MECHANICAL	Back		
	Bracket		
	Packing		
	Sub-Total		
CIRCUIT	Application Processor		
	Memory		
	Bluetooth/WLAN		
	User Interface		
	PM / Battery		
	Electro-Mechanical		
	Others		
	Sub-Total		
ETC	Charger		
	Manual		
	Sub-Total		
Total			



SAMPLE

This sample is designed to help understand the composition of the report and the type of description.

- ✓ Total Cost of Kindle Fire is \$000.0
- ✓ Taking a look at part by part, display parts (TSP included), circuit parts, mechanical parts, and accessory & other parts account for 00.0%, 00.0%, 0.0%, and 0.0% respectively

* Array, cell, and module of display part add up the material cost and process cost following the order of a production process

Profit Estimation

Display & Touch Screen Panel

Category	US\$	%
Array	Glass	
	Target	
	Chemical, Others	
	Array Sum	
	Array Yield(%)	
	Yielded Array Total	
Cell	Color Filter	
	Liquid Crystal	
	Polarizer	
	Others	
	Cell Sum	
	Cell Yield(%)	
Module	Yielded Cell Total	
	BLU	
	Driver IC	
	PCB,Others	
	Module Sum	
	Module Yield(%)	
Yielded Module Total		
Sub-Total		

Processing	Labor Costs
	Depreciation Cost
	O/H,R&D
	Sub-Total

Total Manufacturing Cost

SG&A(5%)

Total Cost

Module Price

Profit

Profit Ratio(%)

Category	US\$	%
Material Cost	Front Cover Glass	
	Glass	
	Insulator	
	ITO	
	Touch Controller	
	Others	
Sub-Total		
Processing Cost		
Total Manufacturing Cost		
SG&A(5%)		
Total Cost		
SP Price		

SAMPLE

This sample is designed to help understand the composition of the report and the type of description.

* Array, cell, and module of display part add up the material cost and process cost following the order of a production process

Profit Estimation

SET Profit Estimation

	US\$	%
Manufacturing	Display Parts	
	Circuit Parts	
	Mechanical Parts	
	Etc.(Accessory) Parts	
	Net Material Cost	
	Etc.(CKD Pack+Tax+Freight+Loss+H/C)	
	Total Material Cost	
	Manufacturing O/H	
	Total Manufacturing Cost	
	Manufacturer Margin	
Distribution	FOB	
	Freight + Insurance + Handling & Land	
	CIF/CNF	
	Distribution O/H	
	Duty/Procedure	
Marketing	Distribution Margin	
	EX-HUB	
	Marketing O/H	
	Marketing Margin	
Consolidated Brand Profit (Brand Total)		

SAMPLE

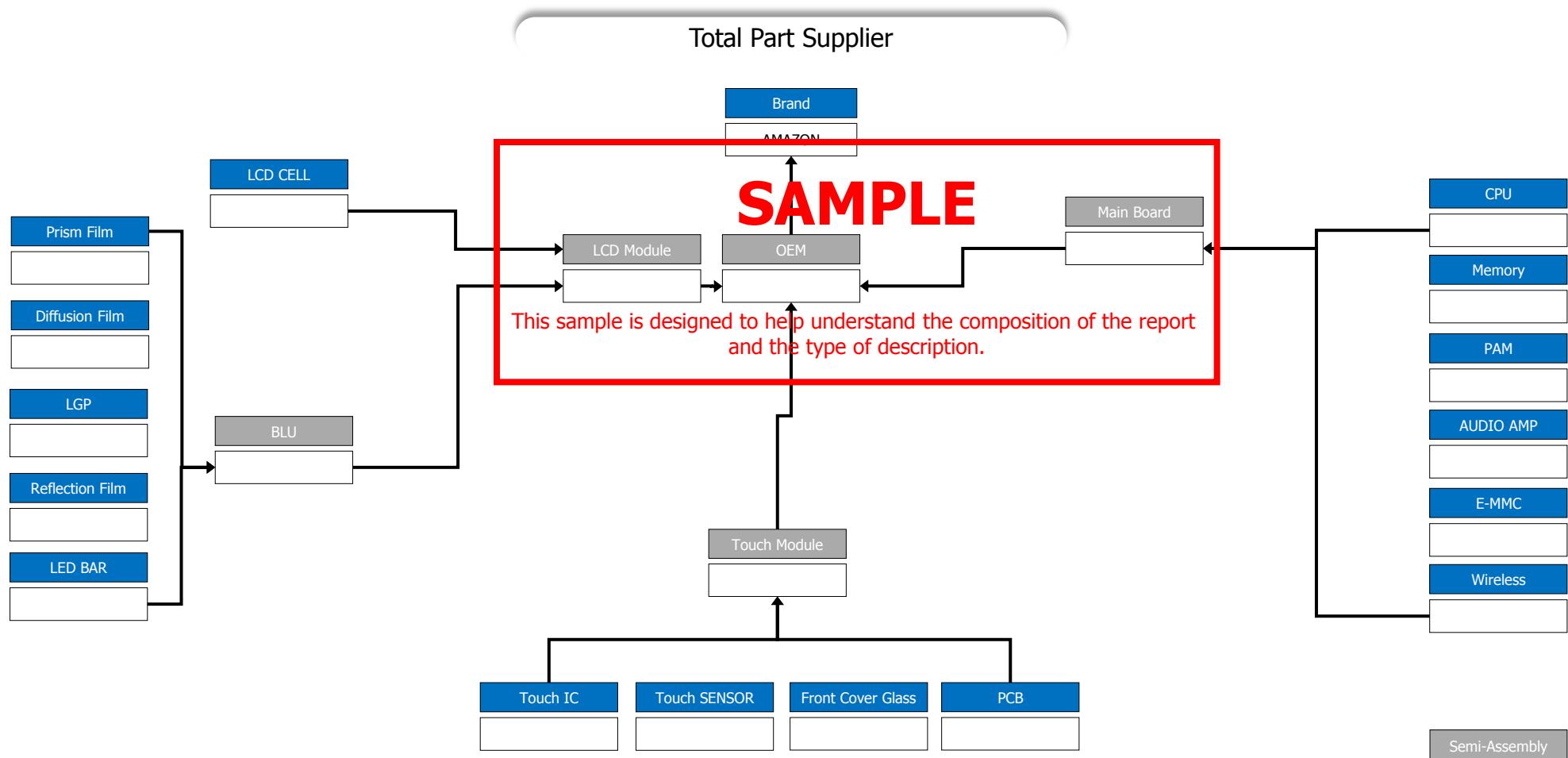
This sample is designed to help understand the composition of the report and the type of description.

- An OEM manufacture, Quanta, is analyzed to make a manufacturer margin of about *%
- As a result of profit estimation based on released time, Kindle Fire is **.*% based on Linkage profit/loss
- However, Amazon is considered to target the profits through the sales of contents such as book/music/magazine and etc. at its own stores and through the products purchase inducement that Amazon sells rather than the hardware sales profit through Kindle Fire

Major Supplier

Total Supply Chain Map

- LCD module suppliers are *** and ***, touch screen panels are supplied from ***
- Applies Texas Instruments' products to CPU, and also uses Texas Instruments' products to PMIC and Audio
- OEM production is carried out by Quanta and supplied to Amazon



SAMPLE

This sample is designed to help understand the composition of the report and the type of description.

Amazon Tablet PC Kindle Fire, Structure and Cost Analysis

End of Report



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 - **Circuit**
 - **Display**
 - **Major Parts**

SAMPLE

This sample is designed to help understand the composition of the report and the type of description.

Mechanical – Package



Mechanical – Package



This sample is designed to help understand the composition of the report and the type of description.

Mechanical – Front/Back



SAMPLE

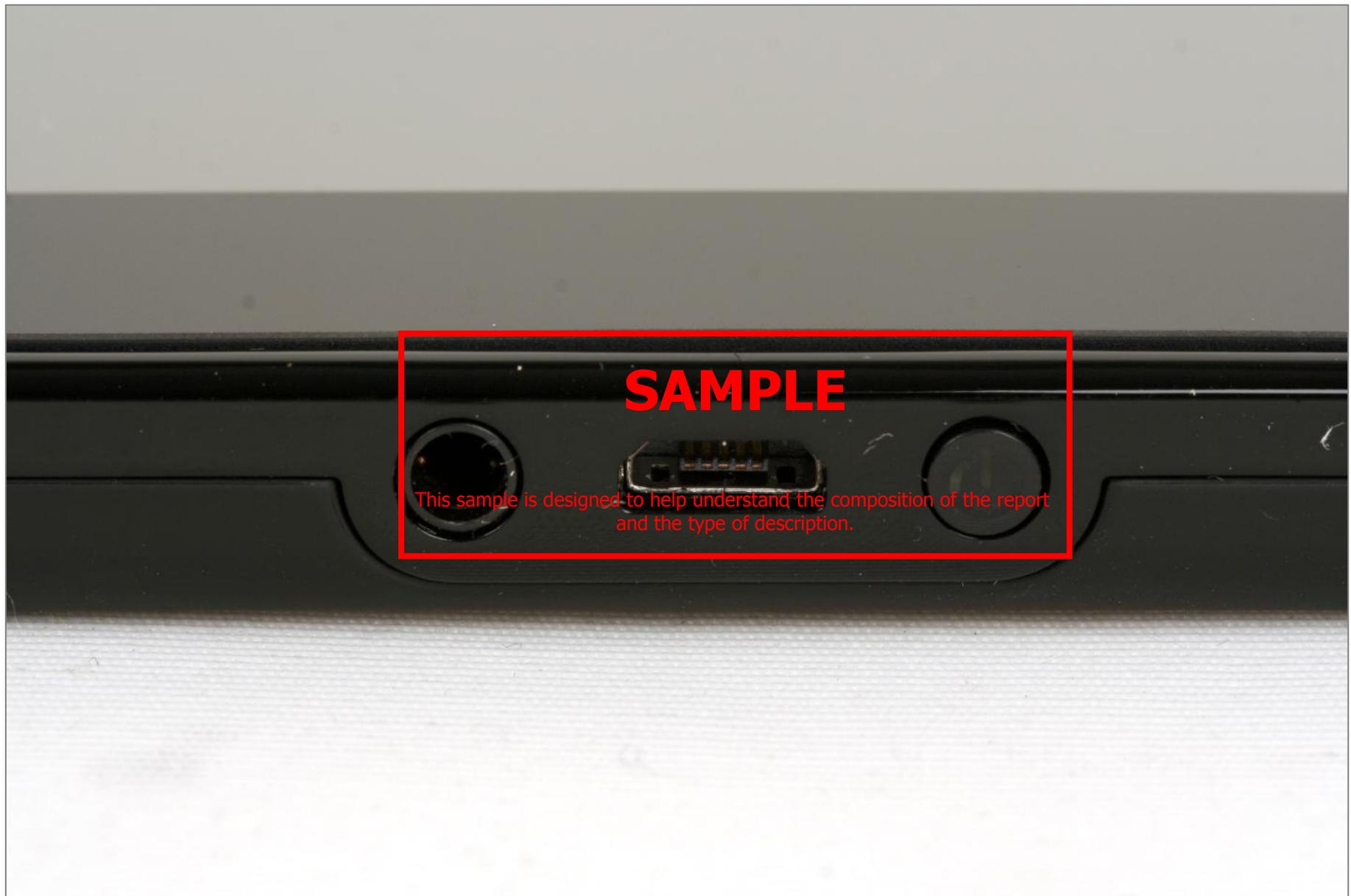
This sample is designed to help understand the composition of the report
and the type of description.



Mechanical – Front (Illuminance sensor)



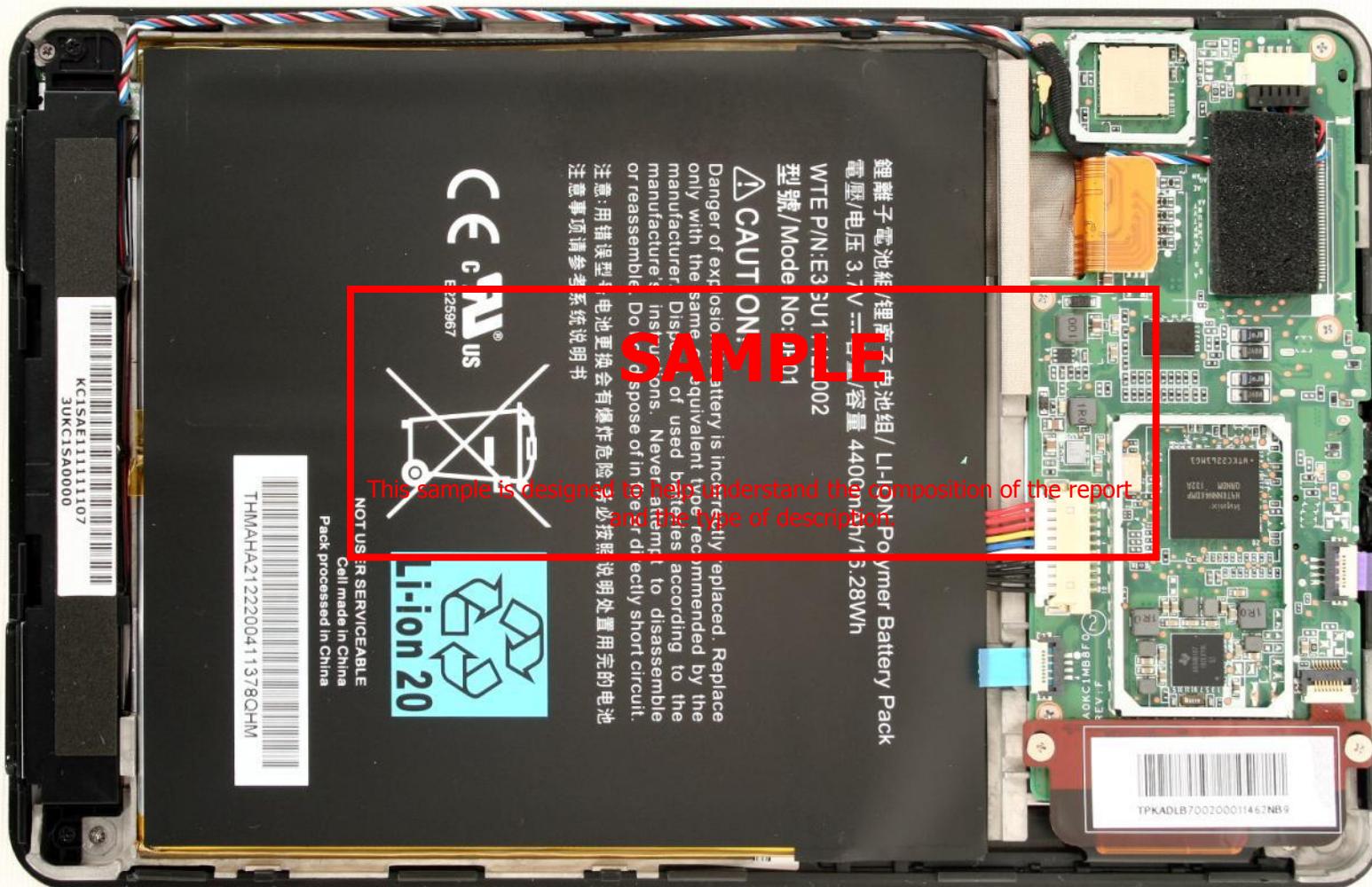
Mechanical – Bottom (Earphone, USB Connector, Power BTN)



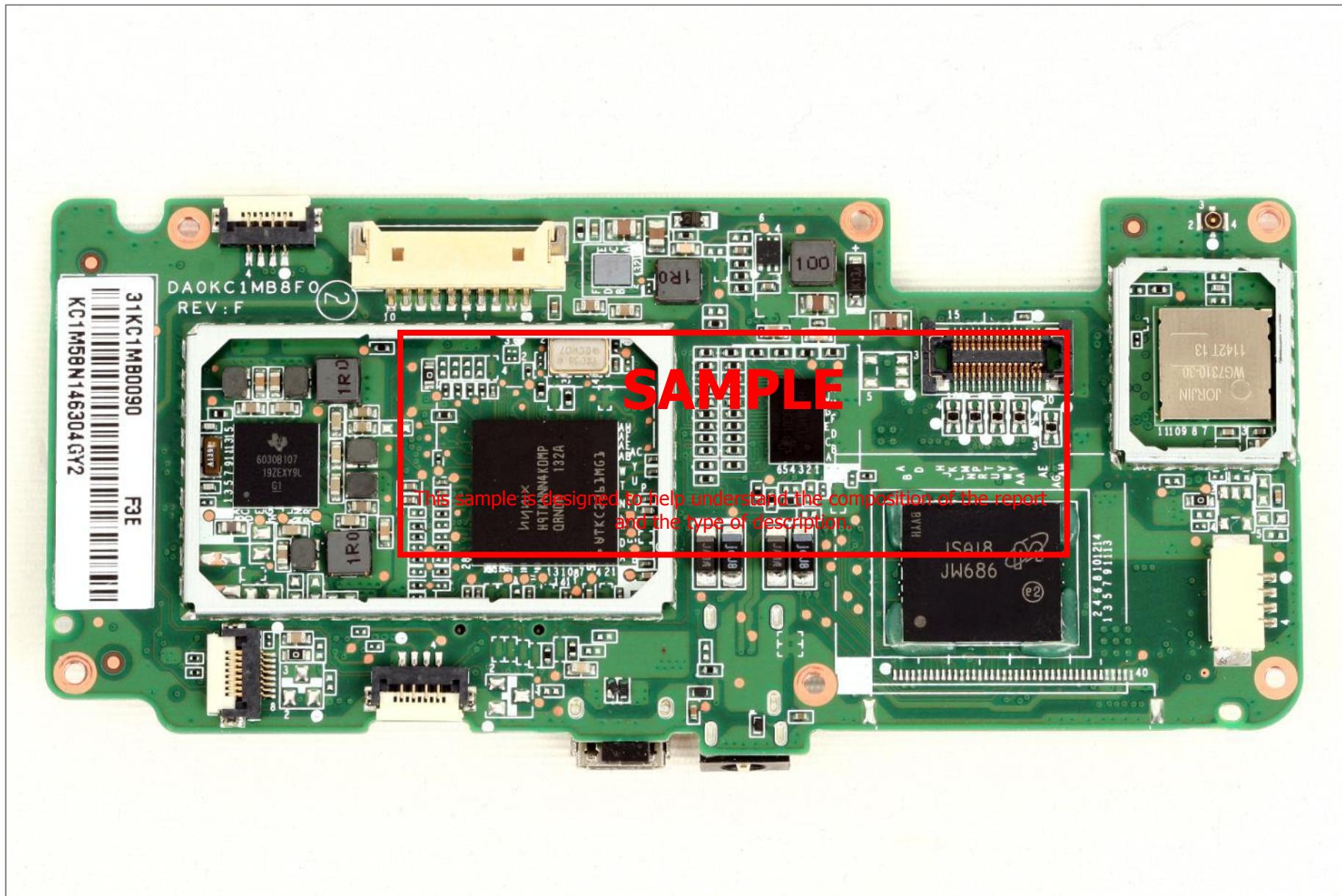
Mechanical – Back Cover



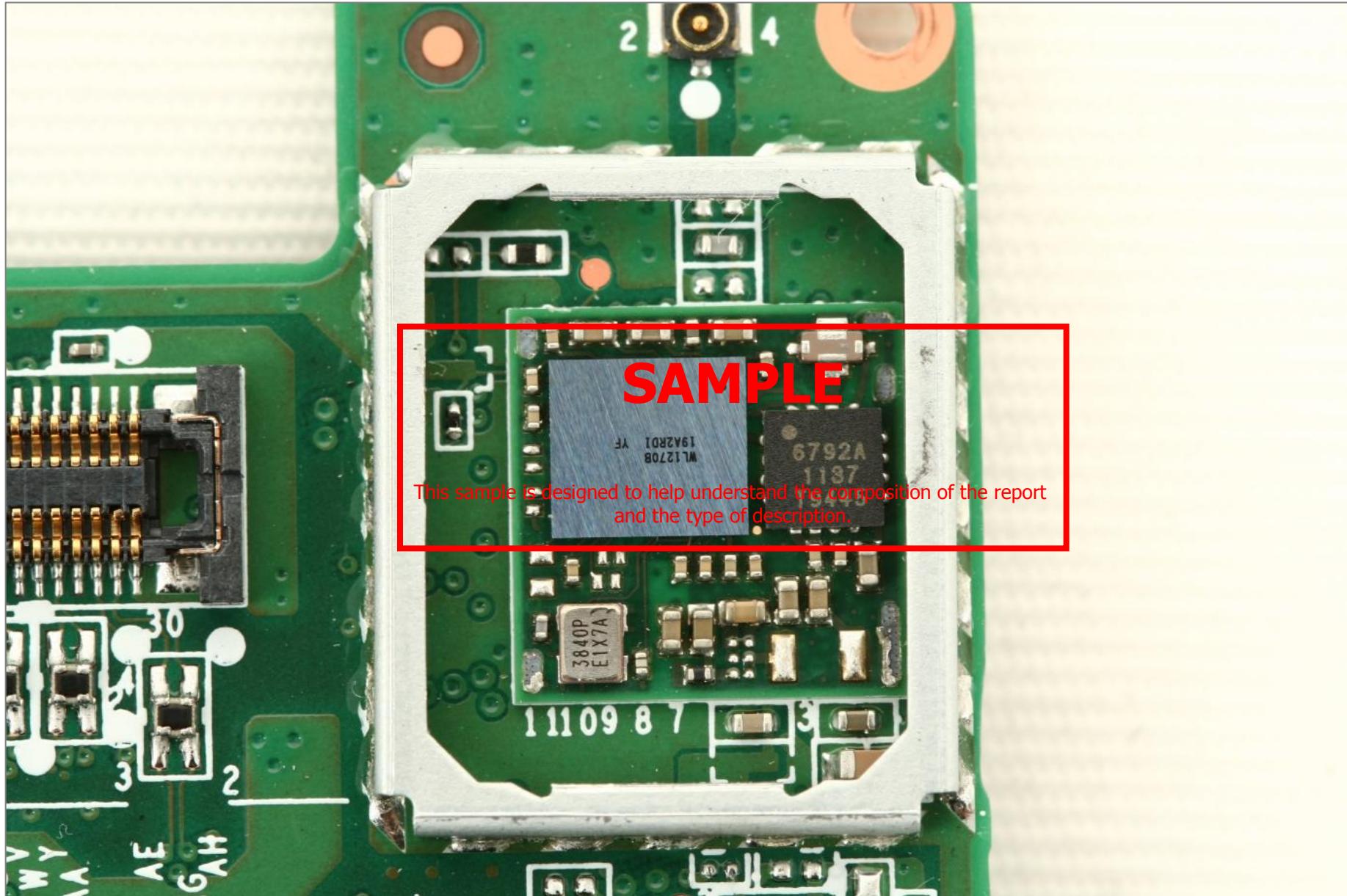
Mechanical – Layout



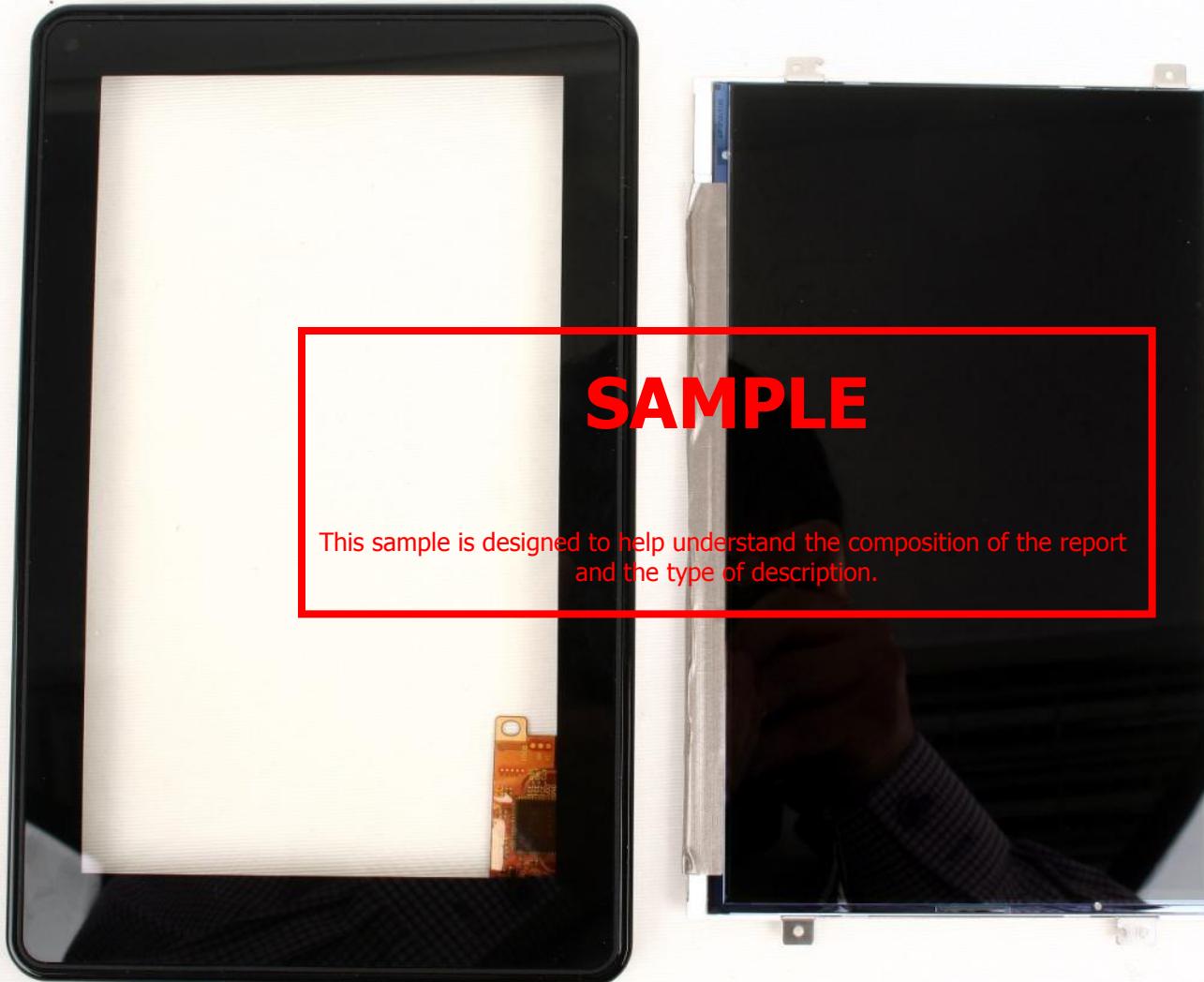
Circuit – Mainboard (Front)



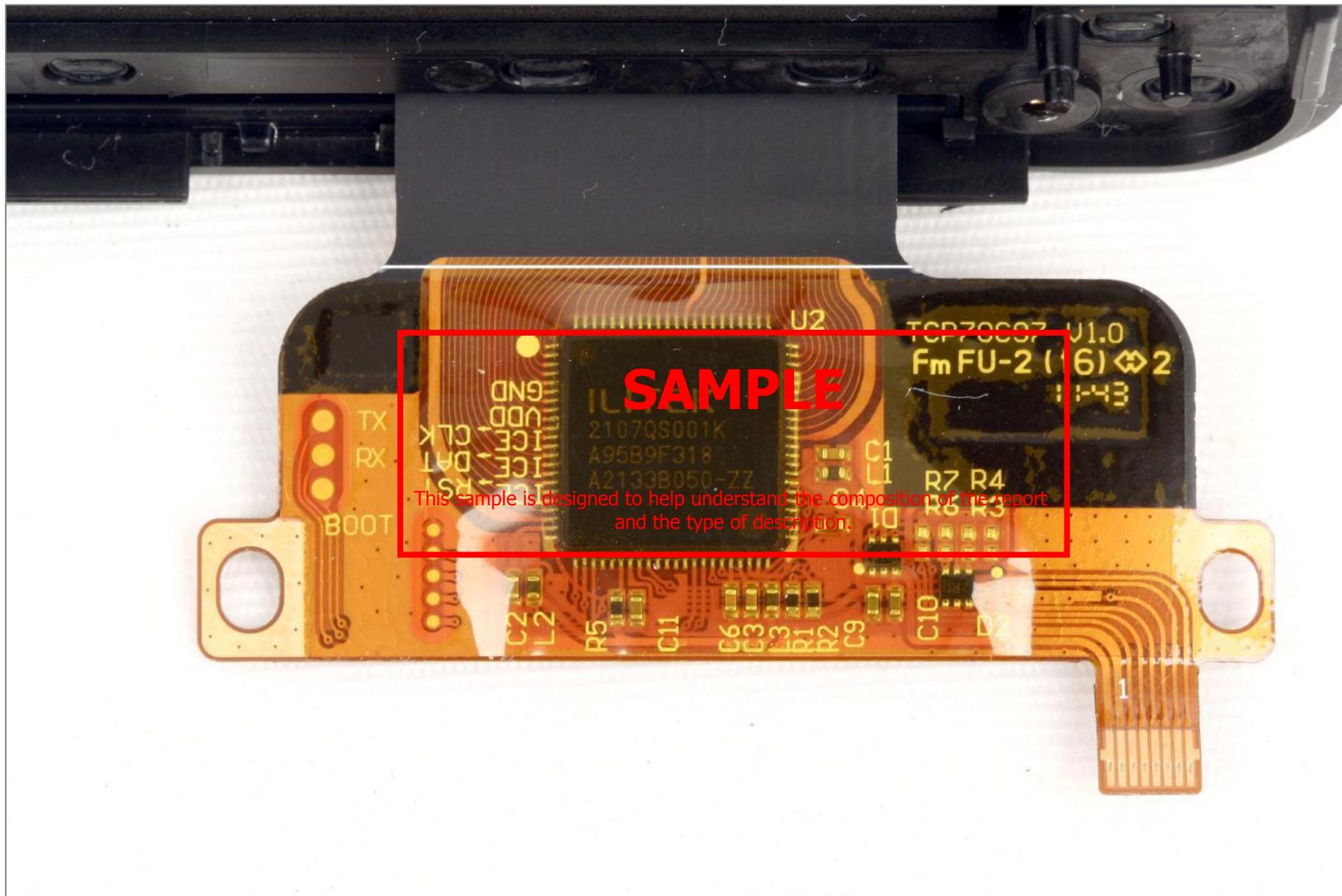
Circuit – Mainboard (RF Module)



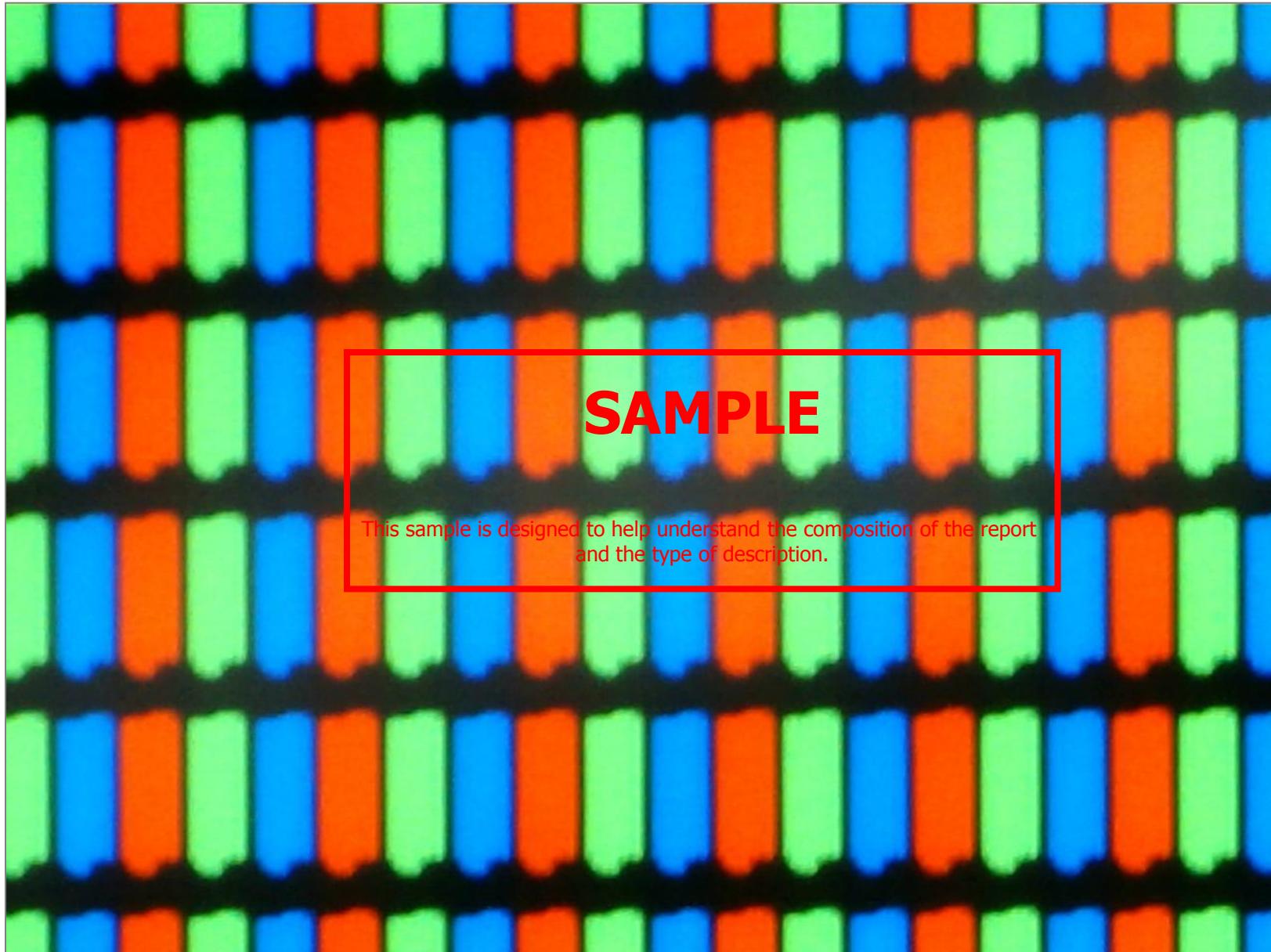
Display – Touch Screen Panel & LCD Module



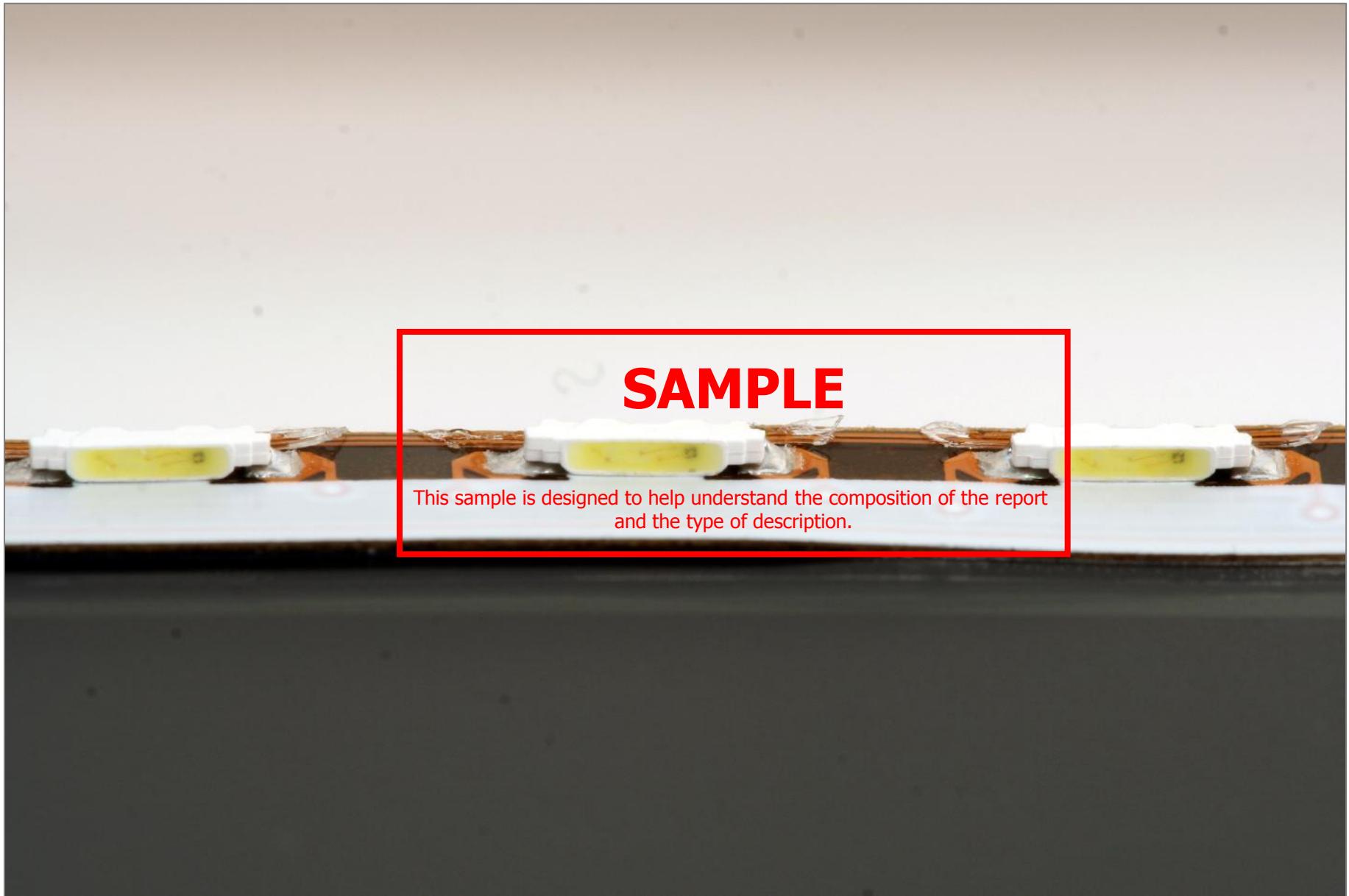
Display – Touch Screen Driving part



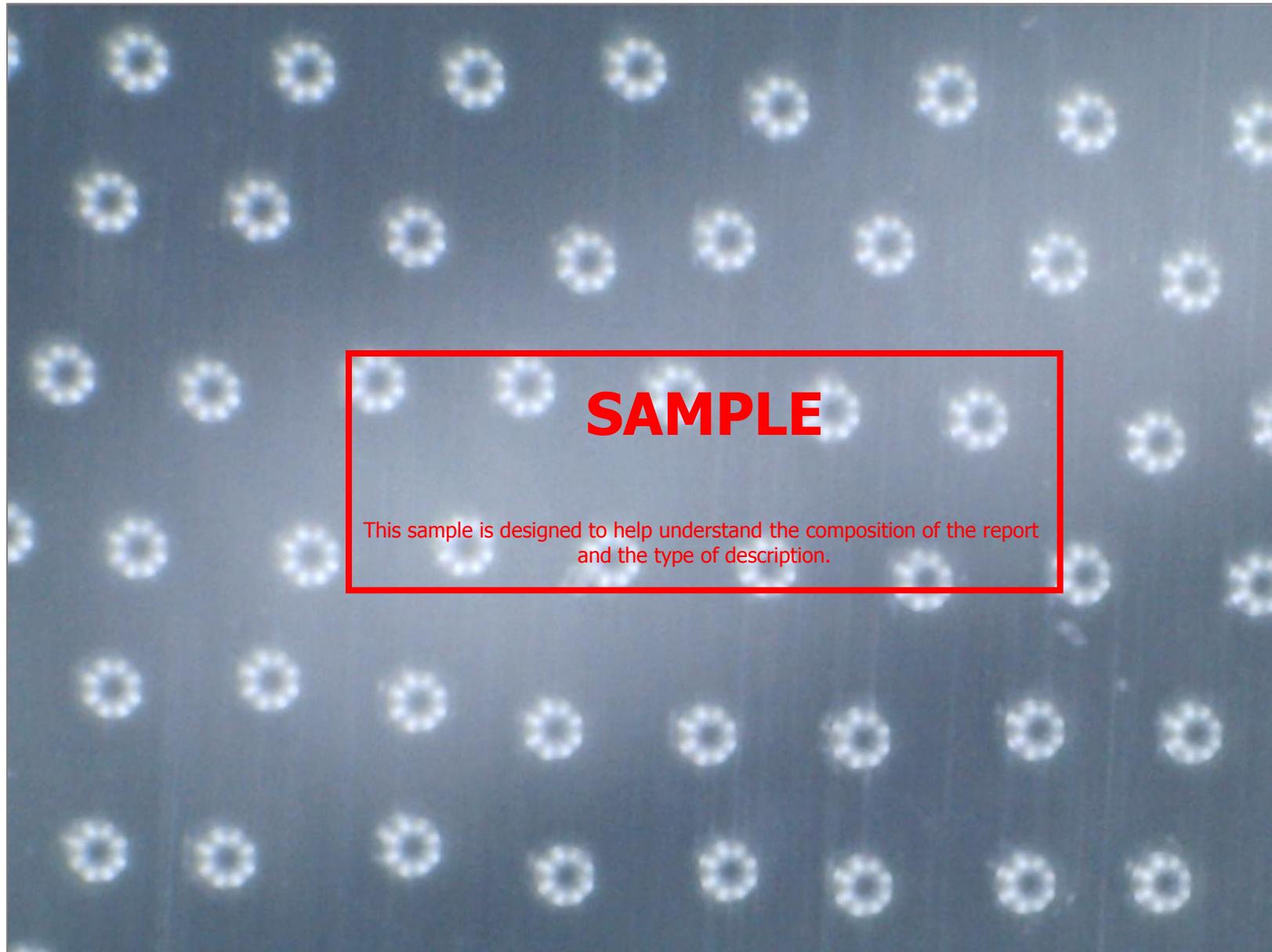
Display – LCD Module (Cell)



Display – BLU (LED Bar & Package)



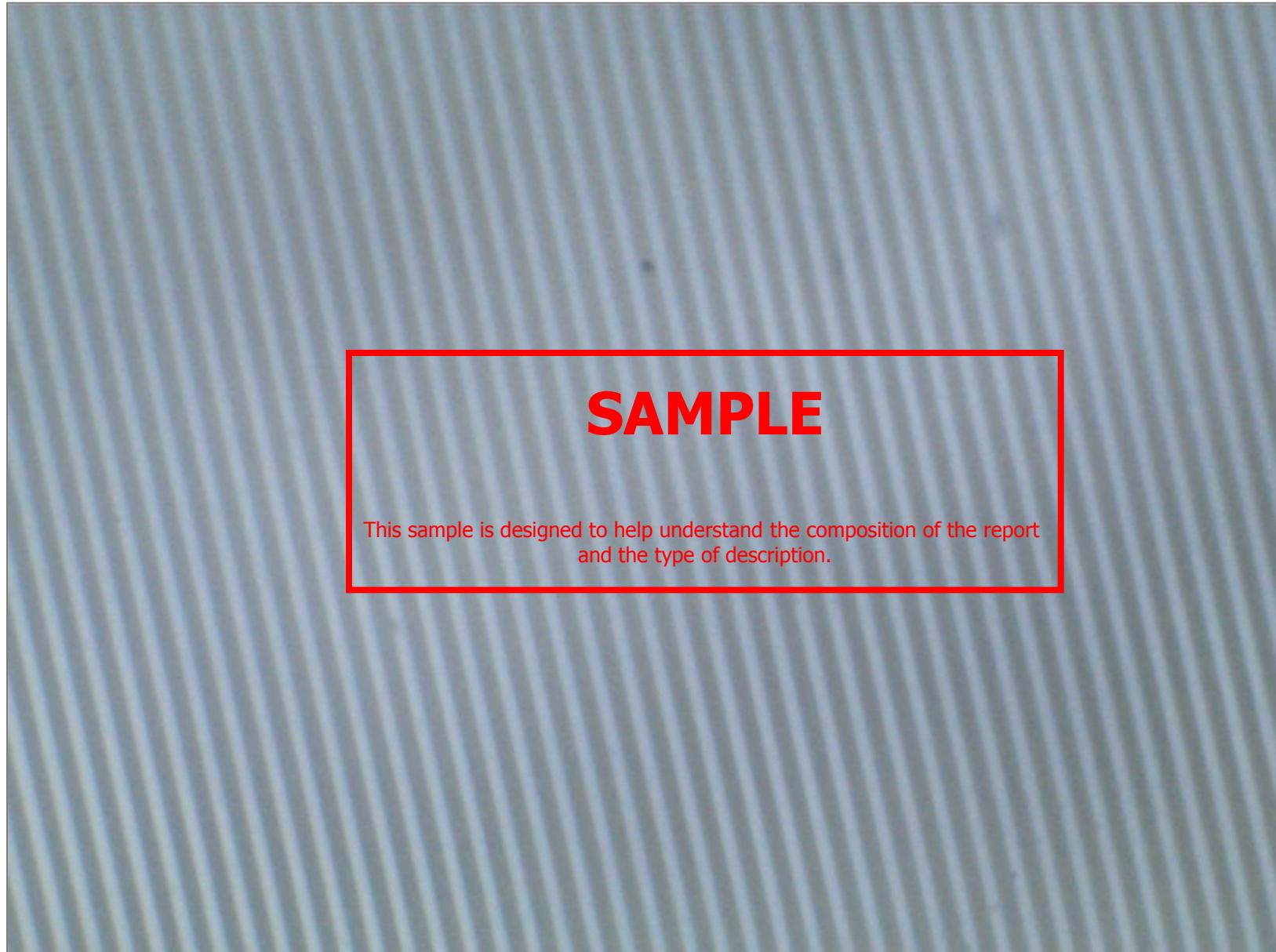
Display – BLU (Light Guide Plate Pattern)



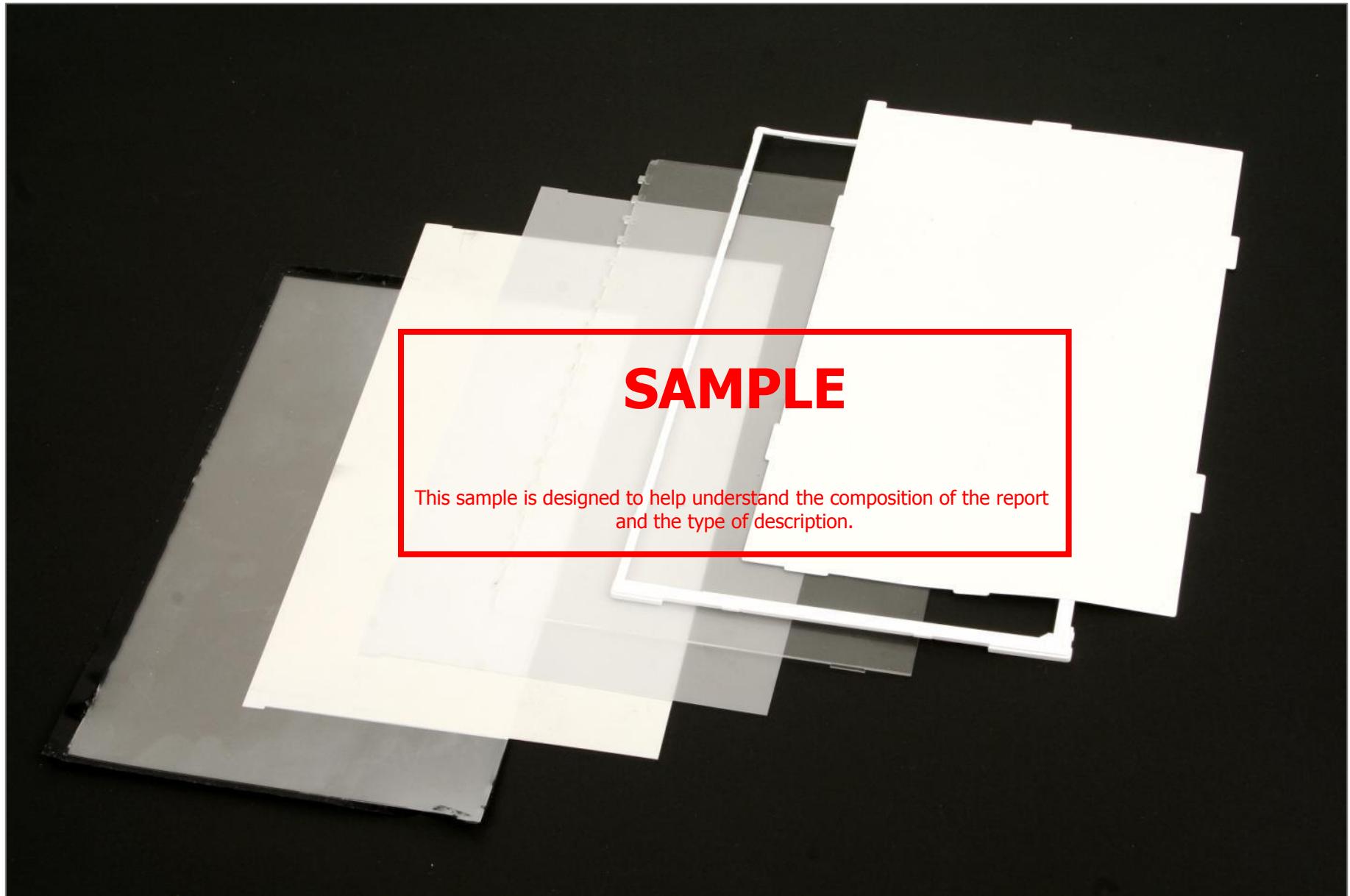
Display – BLU (Light Guide Plate)



Display – BLU (Prism Film #2, Back)



Display – BLU (Optical Films)



Kindle Fire – Overview



Major Supplier

LG Display

Date of Establishment	• 1985.02.28
Capital Stock	• (mil) \$ 9,733.8
Location of Headquarter	• Seoul
No. of Employees	• 2010 Employees 46,705
Main Product	<ul style="list-style-type: none">• TFT-LCD• OLED• Flexible Display• Note PC• Television• Application Products

This sample is designed to help understand the composition of the report and the type of description.

SAMPLE

2011 3Q Revenue • (mil) \$ 16,074

2011 3Q Profit • (mil) \$

2010 Revenue • (mil) \$ 22,501.2

2010 Profit • (mil) \$ 3,290.4

[Asia]

- Tokyo branch
- China Nanjing branch
- China Shanghai branch
- China Guangzhou branch
- China Shenzhen branch
- China Xiamen branch
- China Puching branch
- China Yantai branch

[America]

- Austin branch
- Houston branch
- LA branch
- Service Center

[Europe, Middle East]

- Finland branch
- European Corporate
- Turkey branch
- Poland branch
- Germany branch

Affiliates

• **Suzhou Raken Technology Ltd, Guangzhou New Vision Technology Research and Development Limited, Global OLED Technology LLC, Paju Electronic Glass Co., Ltd, TLi Inc, New Optics Ltd., LIG ADP Co., Ltd, Wooree LED Co Ltd., Dynamic Solar Design Co., Ltd., RPO Inc, LB Gemini No. 16 New Growth Fund, Can Yang Investments Limited, YAS Co., Ltd., Eralite Optoelectronics(Jiangsu) co, Ltd,**

Web Site • www.lgDisplay.com

Reverse Engineering Reports

[Tablet PC & Smart phone]

- BARNES & NOBLE 7" Tablet PC NOOK Color Structure and Cost Analysis
- Apple iPad 2 Structure and Cost Analysis
- Apple iPad 1 Structure and Cost Analysis
- Motorola 10.1" Tablet PC XOOM Structure and Cost Analysis
- Samsung 7" Tablet PC Galaxy Tab Structure and Cost Analysis
- Apple iPhone 4 Structure and Cost Analysis
- Samsung 10.1" Tablet PC Galaxy Tab Structure and Cost Analysis
- Apple iPhone 4S Structure and Cost Analysis
- Amazon Kindle Fire Structure and Cost Analysis

[TV]

- Samsung 3D Smart LED TV UN46D7000LF Structure and Cost Analysis
- LG Electronics FPR 3D LED TV 47LW5700 Structure and Cost Analysis
- Toshiba Non-Glasses 3D LED TV 20GL1 Structure and Cost Analysis
- LGE 15LE9500 vs. SONY XEL-1 Structure and Cost Analysis Comparison
- 3D TV Structure and Cost Analysis Comparison of 3 Major TV Makers
- LG Electronics 3D TV '47LX6500' Structure and Cost Analysis
- Sony 3D TV 46" KDL-46NX710 Structure and Cost Analysis
- Samsung 3D LED TV UN46C7000WF Structure and Cost Analysis

[Monitor]

- BenQ 18.5"/21.5" LED Monitor GL930/GL2230 Structure and Cost Analysis
- LG Electronics 23" LED Monitor E2350V-PN Structure and Cost Analysis

Inquiry

– Jae Shin(jae@Displaybank.com), +1-408-432-5046, Amy Lee (amy@displaybank.com), +82-31-704-7188 (Ext. 101)

About Displaybank - Global Operations

- Global leader in Display industry research and consulting services
- With over 10 years of industry-wide research experience, Displaybank provides market intelligence as well as technical research to industry leaders
- Besides end-user market, especially strong in the Component/Material research that is basis of the overall Display industry
- Headquartered in Korea, the region known as the leader in Display industry, Displaybank operates regional offices in Japan, China, Taiwan and the US.



CHINA (Beijing, Shenzhen)

E-mail: china@Displaybank.com



TAIWAN (Taipei)

E-mail: taiwan@Displaybank.com



JAPAN (Tokyo)

Tel: +81-3-5521-5088
Fax: +81-3-5521-5089
E-mail: japan@Displaybank.com



USA (San Jose)

Tel: +1-408-432-5046
Fax: +1-408-432-5080
E-mail: usa@Displaybank.com



KOREA (Bundang) Headquarters

8F 801, Korea Design Center 344-1 Yatap-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea, 432-954
Tel : +82-31-704-7188, Fax: +82-31-704-7187
E-mail : Displaybank@Displaybank.com
Representative : CEO Peter Kwon



About Displaybank - Research Coverage

{ Covering Entire Sectors of Display Industry }

Panel / MODULE



- LCD Panel
- PDP Module
- OLED Panel

Shipment Trend & Forecast
Price Trend & Forecast
Supply/Demand Trend & Forecast
Cost Comparison/Analysis
Supply Chain Analysis

SET



- TV
- Tablet
- e-Reader
- Notebook
- Tablet PC
- Public Information Display

COMPONENT / MATERIAL



- LED
- Polarizer
- BLU
- Touch Panel
- Wet Chemical
- Organic Materials
- Metal Layer
- Driver IC
- Glass
- Color Filter
- Optical Films

Line Status Analysis by Maker
Corporate Analysis and Investment Trend

Development Strategy by Maker
Roadmap Analysis by Maker
Tech. Trend and Analysis

Patent Analysis
Reverse Engineering Analysis
(Product Structure & Cost Analysis)

NEW TECHNOLOGY



- Flexible Display
- 3D Display
- e-Paper Display
- Transparent Display
- Graphene, CNT